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roblems of Economics

Selected Articles from Soviet Economics Journals in English Translation

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Selected Articles from Soviet Economics

Journals in English Translation

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Nauchnye Doklady Vysshei Shkoly,
Ekonomicheskie Nauki, No. 1, 1960

.. MIAGKOV:

Technical Progress and Obsolescence of Equipment in the USSR

The fulfillment of the Seven-Year Plan of Soviet ational economic development (1959-1965) will ark an important step forward in building the ma- rial and technical base for a communist society. his requires high rates of technical progress in ll branches of the national economy, something at inevitably leads to the obsolescence of the in- ruments of labor.

Both under capitalism and socialism obsoles- nce of machinery and equipment is due to techni- l progress. But under socialism, because of cialist production relations, this obsolescence is a totally different nature and has fundamentally fferent social and economic consequences than der the capitalist system. This stems from the ecific features of technical progress in a social- t society.

Under capitalism expansion of production is un- ntrolled and unbalanced. Hence, society is not in position to estimate requirements for new plant. der this system technical progress takes place leaps, through crises which cause huge losses the community, the heavy burden of which has to shouldered by the working masses. Under capi- lism replacement of old machines by new ones is und to lead to higher unemployment and more in- se exploitation of the workers.

Under the socialist system, technical advance, e the whole process of development of social oduction, is planned and carried out for the pur- se of satisfying the growing needs of the working ople. The planned nature of development, the sence of crises and unemployment, are decisive tors in the continuous technical progress of all anches of production and the high rate at which is realized. Socialist society has every oppor- ity of accurately gauging its requirements in w plant and putting it into production without de- . This is instrumental in raising labor produc- ity, easing the conditions of work, cutting the rk day, and improving living standards.

Mechanization can be introduced on a far wider le under socialism than under capitalism and this enables socialist society to use new machinery more extensively.

Under socialism obsolescence of machinery and equipment assumes two forms. In the first case, obsolescence is due to a partial loss of the machine's value because of improved methods of producing it. While in this case the old machine loses part of its value, it fully retains its use value because with the same input of labor as before it can turn out the same volume of production as a new, cheaper machine of a similar design.

In the second case, equipment becomes obsolescent owing to the appearance of new, more productive and economical machines which turn out better products, improve working conditions, etc.

Under these circumstances the old machines depreciate, partially or fully losing their use value. While in the first case of obsolescence it is not absolutely necessary to replace an old machine by a new one before schedule, in the second case this is imperative because due to the partial or complete loss of use value the life of the machine is shortened.

The first form of obsolescence is not difficult to estimate in the process of planning, except that it is necessary periodically to revalue the obsolescent equipment. In the second case the reckoning of obsolescence is extremely complex, involving the solution of a number of important theoretical problems such as determining the number of economic branches which are directly affected, the degree of the machine's depreciation, the point at which it begins to be obsolescent, etc.

The two forms of obsolescence are also distinguished by the fact that, although they act side by side, each is a dominant factor in different periods of technical advancement in various branches of production.

When Karl Marx pointed out that because of constant improvements machines lose their use value, and by the same token their value, he stressed that "the impact of this process is exceptionally strong during the early period of introduction of new

machines, when the latter are not yet sufficiently developed and because of this they, more often than not, become obsolescent before they can reproduce their value.

"Whenever machines, types of structures, and fixed assets in general have reached a certain degree of maturity, so that for a certain length of time they remain unchanged, at least insofar as their basic design is concerned, a similar kind of depreciation takes place because of improved methods of reproducing these fixed assets." (1)

This statement is fully applicable to a socialist society and is supported by an analysis of the periodicity of launching new models of certain machines in the USSR.

The need to rapidly develop one or another branch of production determines the different rates of technical progress in these branches. Hence, the periodicity of launching new models of machines in these branches will vary. For instance, between 1945 and 1957 the annual output of metal-cutting lathes increased from 38,400 to 130,900 units, which is a 240% increase. The output of Diesel locomotives, on the other hand, increased between 1940 and 1957 (in 1945 these locomotives were not in production) from five to 400 units, i.e., an 80-fold increase. The average periodicity of commissioning of a new mass-production model of a metal-cutting lathe was 7.28 years, and for Diese locomotives it was two years (data supplied by th Experimental Scientific Research Institute of Met al-Cutting Lathes — ESRIMCL).

The production of Diesel locomotives in our country is in fact a new branch of industry and th process of improving their design is proceeding a a very rapid rate. In 1946, for example, the Dies locomotive series DB of 1,000 hp. was completed and next year production of the TE-1 series, also of 1,000 hp., was begun. Then in 1948 the Kharko Works turned out a two-section Diesel locomotive of the TE-2 series with two generators aggregating 2,000 hp. Next came improved TE-3, TE- TE-7 models, and then in 1959 the TE-50 of 6,000 hp. Diesel locomotive construction is a typical illustration of the initial stage of introducing new machinery in production.

In the initial stage, improvements in the design of the new models proceed more rapidly than improvements in the methods of producing these models. The latter process in serial production is more or less regular.

***

Table 1

Changes in Production Costs of Principal Models of Motor Cars at the Likhachev Works Between 1951 and 1955*
(In per cent of preceding years)

Model	1951	1952	1953	1954	1955
ZIL-150	97.0	87.8	97.3	98.9	94.2
ZIL-151	94.1	86.1	98.0	97.3	95.6
ZIL-156	96.6	85.9	98.3	99.0	100.0

* Data of the Planning and Economic Department of the Likhachev Works.

** The considerable reduction of production costs in 1952 was largely due to a cut in the prices of raw and other materials in 1951.

While improvements in production methods, and consequently a reduction of production costs, proceeds more or less continuously, the introduction of new models, on the other hand, occurs periodically. Periods of important changes in the design of certain machines alternate with periods of relative stability of design. At times when the design of equipment or machinery remains essentially stable, it is the first form of obsolescence that predominates, for improvements in the method o production continue as steadily as in the past. Th comes a period of relatively rapid improvement the design of machines, as can be seen from the table shown on top of the following page.

These figures indicate that 28 new models were put into production between 1933 and 1938 (40% o all the tabulated machines); 13% or 9 models were commissioned between 1944 and 1946; and 27% or

Table 2

Commissioning of New Models of Metal-Cutting Lathes Between 1930 and 1956*

Year	No. of new models	Year	No. of new models	Year	No. of new models
1930	3	1939	0	1948	1
1931	0	1940	2	1949	6
1932	2	1941	0	1950	4
1933	7	1942	1	1951	6
1934	6	1943	0	1952	3
1935	5	1944	5	1953	1
1936	1	1945	0	1954	1
1937	5	1946	4	1955	1
1938	4	1947	2	1956	0

* Based on data supplied by the USSR State Planning Committee's Economic Research Institute and ESRIMCL. The table covers 70 models, including 19 screw-cutting machines, 14 milling machines, 5 vertical lathes, 14 drilling machines, 7 turret lathes and 11 grinding machines.

models were put into production between 1949 1952. If we take 1936, 1945 and 1951 as aver- intervals, we can see that these periods alter- e about every 7.5 years. The ESRIMCL esti- tes the average periodicity of commissioning of serial models of metal-cutting lathes at 7.28 rs. This means that although we covered a all number of models, the data supplied by Table ive an accurate picture of the objective condi- s governing the production of metal-cutting lathes. he practical experience gained in the develop- nt of Diesel locomotives, the chemical and cer- other industrial branches shows that the sec- form of obsolescence affects the more rapidly ancing branches of production above all. Since second form of obsolescence is predominant at initial stage of introducing new machinery, the iod in which this machinery will remain in ration will be far shorter than its actual physi- life. This type of equipment must be rapidly aced by new machinery of a more modern de- in order to meet the requirements of the na- al economy for this type of plant to the greatest sible extent. If the economy's requirements for e new machines are not being met, then in e of their obsolescence they will remain in op- ion. In these conditions the degree of obso- ence of certain makes of machinery may be ed by the duration of their continued production the time which elapsed since they stopped be- produced.

Table 3 shows that out of the 70 models we have considered which were commissioned between 1930 and 1956, 44 were taken out of production, of which 38.6% were in production up to five years and 77.2% up to 10 years. The largest proportion of lathes which were in production five years or less were the drilling machines (70%) and the grinding machines (62.5%).

It is characteristic that intensive stoppage of production of old models is not systematic but periodic. For instance, out of the 44 models taken out of production, 12 (27%) were discarded in 1939-1940; six (14%) in 1944-1945; and 10 (about 23%) in 1948-1950.

All this shows that machinery and equipment are subject to the second form of obsolescence not systematically but periodically, for new models of these machines also appear periodically.

In determining the nature of depreciation through obsolescence of the instruments of labor under socialism one must bear in mind not only the periodicity of the commissioning of new models but also the connection between obsolescence and the operation of the law of value.

The value of equipment depends on the outlay of the socially necessary labor for its production. Hence, while the machines are in operation they will transfer to every unit of production the amount of value corresponding to normal social conditions of production.

Certain economists, S. Strumilin, (2) A.

Table 3

Duration of Production of Certain Models of Metal-Cutting Lathes Discarded in the Period Between 1930 and 1956*

Type of Lathe	Production stopped after following term of output				
	Total	5 years and less	6 to 10 years	11 to 15 years	15 years and more
A	B	C	D	E	F
Screw-cutting	9 / 100.0	3 / 33.3	3 / 33.3	2 / 22.3	1 / 11.1
Milling	12 / 100.0	2 / 16.6	7 / 58.5	1 / 8.3	2 / 16.6
Vertical	1 / 100.0	— / —	1 / 100.0	— / —	— / —
Turret	4 / 100.0	— / —	2 / 50.0	2 / 50.0	— / —
Drilling	10 / 100.0	7 / 70	1 / 10	1 / 10	1 / 10
Grinding	8 / 100.0	5 / 62.5	3 / 37.5	— / —	— / —
Quantity	44	17	17	6	4
Total, in %	100.0	38.6	38.6	13.7	9.4

* Based on data supplied by the USSR State Planning Committee's Economic Research Institute and ESRIMCL.

Stepankov and others, consider that machines, equipment and other instruments of labor used in production depreciate gradually, constantly, year by year, that they begin to lose part of their value from the very first year in which they are commissioned. In their opinion the moment a single, more efficient and cheaper machine is put into operation, thousands of other machines which are functioning for the same purpose are immediately subjected to the process of depreciation. In this connection they cite Marx, who stated that "the bulk of available capital is constantly depreciating to some extent in the course of the reproduction process, because the value of commodities is not determined by the labor time which is initially expended on their production but by the labor time expended on their reproduction, and the latter is constantly contracting due to the development of social-productive labor power." (4) A. Stepankov erroneously interprets Marx's words as meaning tha "under these circumstances the instruments of la bor are continuously losing their initial value." (

In ascertaining the factor of obsolescence unde capitalism, it is necessary to take into account th cyclical nature of capitalist reproduction. Becau of economic crises the capitalists are forced to r new their fixed capital only periodically. Techni- cal progress and the rise in labor productivity do not proceed in a balanced manner but by leaps, g ing through recessions and booms. It stands to reason that all this cannot serve as a material ba- sis for a constant depreciation of the implements of labor. Elaborating on this, Marx remarked tha "at a higher stage of development of social produ tivity the whole available capital appears not as t result of a lengthy process of accumulation of

apital but as the result of a relatively short period f reproduction." (6)

Thus, Marx speaks in this case not of a constant epreciation of the instruments of labor at each iven moment, but of their depreciation over a irly long period of time. If we view this process ot over a short period (a year, say), but over a engthy interval, in spite of its periodic nature during this interval it will appear as a continuous rocess based on rising labor productivity. This xplains why Marx speaks of a more or less constant depreciation of the instruments of labor under apitalism, in spite of crises, of irregular increases in the productivity of social labor, etc. ence, Marx's cited statements on this subject provide no grounds for asserting that the instruments labor are subject to constant depreciation.

In point of fact the instruments of labor become solescent not systematically but periodically, om time to time. Furthermore, this takes place t only under conditions of spasmodic increases in oor productivity but also when labor productivity rising steadily, as is the case in a socialist society.

Machinery, equipment and other instruments of oor are not merely instruments of labor, they are so products of labor. It follows that when we consider the obsolescence of instruments of labor we ust draw a strict distinction not only between the o forms of obsolescence, but also between two stinct fields of production: the field of production of instruments of labor, in which the latter are products of labor, and the field of their application, in which they become instruments of labor. n the field of production, instruments of labor not differ in any way from other products and mmodities. Yet we know that the value of commodities is not determined by the individual inputs labor in their manufacture but by the socially essary conditions of their production, taking account of the average skill and intensity of labor in iven society. The socially necessary conditions production will not be the best ones prevailing he output of a given commodity, but those obtaining in the production of the bulk of commodities. s a rule various instruments of labor are manctured not by one but by several enterprises. It ows that if one enterprise adopts new methods ch cut production costs, the new production ditions in the initial period will be of an indial nature, because the share of cheaper instruts of labor in total output will still be small. refore, when cheaper machines are produced mall numbers the more expensive ones turned by other enterprises do not yet lose part of r value. But the enterprises manufacturing cheaper machines will yield a larger volume of accumulations to the national economy. When the bulk of instruments of labor are manufactured under the improved conditions, the individual inputs of labor in their production will become socially necessary and, consequently, will determine the value of the entire output of these tools. In this case the more costly machines will lose part of their value, i.e., society will no longer consider the former inputs of labor as socially necessary.

In this way, in the field of production of instruments of labor the first form of obsolescence becomes operative when the individual inputs of labor in the enterprises producing cheaper machines become socially necessary.

In this particular case it is not advisable to stop production of these instruments of labor. What has to be done is to rapidly introduce the new methods of their production in all enterprises. Here we see the decisive advantage of the socialist planned economy over the capitalist system.

A different situation prevails with respect to the second form of obsolescence. When new models of machines are put into production it is no longer to the advantage of society to manufacture outdated models. It becomes necessary to stop production of the old model and start producing the new one. In this case, equipment and other types of instruments of labor become subject to the second form of obsolescence in the field of their production as soon as a single new, more efficient model makes its appearance.

This shows that in the sphere of production of instruments of labor the effect of the two forms of obsolescence is not equivalent. On the other hand, in the field of utilization of the instruments of labor both forms of obsolescence have about the same effect. When one or more somewhat cheaper and more productive machines are put into operation, the socially necessary conditions of production and, therefore, the level of socially necessary inputs of labor remain unchanged, because the latter is determined by the conditions of production of the largest volume of a particular commodity. The value of the commodities will remain unchanged although their cost of production at the factories using the new instruments of labor will fall. This means that the old instruments of labor will transfer to the product the same value as formerly, for this is in keeping with normal social conditions of production. This will go on until new conditions of producing the commodity will become socially normal and will determine the socially necessary outlays of labor for the production of that commodity. Once this is achieved the old instruments of labor will be partially depreciated and will transfer to the product less value than before.

It therefore follows that in the sphere of utilization of the instruments of labor these do not become obsolete as soon as new, cheaper and more efficient units are put into operation, but only after a certain period of time, when the conditions of production of the new instruments of labor will determine the rate of socially necessary expenditure of labor for the output of a given product.

Thus, the periodic nature of the depreciation of equipment through obsolescence under the socialist system is demonstrated both by the analysis of the periodicity of the commissioning of new models, and the analysis of the operation of the law of value in a socialist economy.

In planning practice it is extremely important to ascertain the point at which certain equipment is becoming obsolescent. It is furthermore imperative to properly ascertain when the instruments of labor subject to the first form of obsolescence should be revalued, and when replacement of old equipment subject to the second form of obsolescence with new machines is economically rational.

The assertions of certain economists that obsolescence of equipment is a constant and systematic process does not and cannot provide a satisfactory solution of these problems. It will suffice to point out that in order to calculate the effect of obsolescence one has to revalue fixed assets annually, which in practice is rather complicated and not really necessary. Once the periodic nature of the obsolescence of instruments of labor is recognized it can be computed relatively easily, rapidly, and at little cost.

The point at which obsolescence sets in for different types of machines and equipment depends on the following factors:

a) the volume of annual output of these particular machines and their share in the total number of such machines;

b) the annual rate of growth in the production of these machines;

c) the proportion of machines scrapped each year;

d) the proportion of equipment modernized each year;

e) the efficiency of the new machinery;

f) the time required for extending advanced methods of production to all plants engaged in the manufacture of this equipment, and the time required for converting these plants to the production of the new, more efficient machinery.

It has been calculated that when the annual output of certain lathes amounts to 10% of the total stock, the increment of annual output is 10%, and the proportion of annually scrapped lathes is 5%, then, if advanced production methods are adopted within three years in all factories producing lathes, the first form of obsolescence will become effective 7 years after the adoption of new methods which cut the cost of production.

Furthermore, if 5% of the equipment is modernized annually and the new machinery is twice as productive as the old, and if only one year is needed for converting a factory to the production of the new, more efficient models, then the second form of obsolescence will appear three years after serial production of the new lathes of that type has started.

From this one may draw the following conclusions:

1. Depreciation through the second form of obsolescence, other things being equal, proceeds at a rate proportional to the growth of productivity of new equipment as contrasted to the old one.

2. If parallel to the commissioning of new, more efficient plant in the national economy, part of the existing equipment is modernized each year in a manner that raises its level of productivity to that of the new machines, depreciation of the old equipment through obsolescence materializes much faster.

It follows, therefore, that on the one hand, when equipment becomes obsolescent its modernization reduces the losses of social labor, while on the other hand, this process speeds up the obsolescence of non-modernized machines.

The proportions used by the author as a basis of these computations closely approximate the actual proportions of the balance-sheet of metal-cutting lathes. Hence, old models of metal-cutting lathes will become obsolescent on the average 10 to 11 years after they are commissioned (7.28 years is the average periodicity of commissioning of new serial models, plus a minimum of 3 years before the newly developed machines will predominate in one or another branch of industry).

Since in the USSR the term of obsolescence for machines depends largely on the time it takes to put a new model into mass production, reduction of this term will depend on reducing the time needed for commissioning new machines.

We are still spending too much time on designing new models and putting them into mass production. As was pointed out at the CPSU Central Committee Plenum of June 1959, one of the causes of this situation is that industrial enterprises have inadequate experimental facilities. Moreover, rapid adoption of new models for mass production is hampered by the fact that standardizing of machine components and parts is done on a much too limited scale. By eliminating these and other defects it will be

possible to speed up the designing of new models and put them into mass production more rapidly.

According to ESRIMCL estimates, during the Seven-Year Plan period the number of basic standard-size metal-cutting lathes must be increased from 900 in 1957 to 1,500 in 1965. This figure includes an increase in new standard-size lathes from 84 in 1957 to 583 in 1965, which is about a sevenfold increment. This means that the new models of metal-cutting lathes will be put into mass production during the period under review at much shorter intervals than in the past.

In order to fulfill the targets of the Seven-Year Plan endorsed by the 21st Party Congress, the CPSU Central Committee Plenum of June 1959 issued directives for improving the methods of research and experimental work and for adopting scientific and technical innovations in actual production. This decision has been taken with the aim of substantially reducing the time required for designing new machinery and for devising more advanced technology.

Mastering the manufacture of newly designed models of lathes, especially when they are put into mass production, in certain cases requires a good deal of time — four years or more — with the result that when they are finally put into mass production they are already outdated in some respects. This happens mainly because new models are usually designed without regard to continuity with the old ones, i.e., every standard-size lathe is designed on the basis of an entirely new pattern of components and parts.

In order to improve the methods of designing and sharply cut down the time needed to put new models into mass production it is necessary to use standard components and parts on a large scale. In addition to the above-mentioned advantages, this will cut the costs of production and maintenance.

Furthermore, the standardization of components and parts makes possible the use of the group method of processing even when single machines or small series are turned out, and permits the production of standardized components and parts by mass-production methods. This is bound to speed up the manufacture of lathes.

The standardization of components and parts depends on the extent to which industrial production is specialized and concentrated. Standardization depends first and foremost on the scale of production and the possibility of specialization and concentration at different factories working at full capacity. Cooperation of factories helps substantially to cut down on the time needed to put new models of machines into production.

It can thus be stated that in the current Seven-Year-Plan period the term for depreciation of machines through obsolescence, particularly as far as metal-cutting lathes are concerned, can be cut down to about 7 to 8 years. In the future it will be very much shorter.

Addressing the June 1959 Plenum of the CPSU Central Committee, Comrade Nikita S. Khrushchev suggested that in the communist society machinery will become obsolescent approximately every five years.

The point at which obsolescence materializes is the best time for revaluing all the equipment subject to the first form of obsolescence, and at that time it is also economically advantageous to replace old machines with new ones if the available supply is adequate.

Footnotes

(1) Karl Marx, Capital, Vol. III, 1955, pp. 119-120 (Russian edition).
(2) See Voprosy Ekonomiki, 1956, No. 8.
(3) Ibid., 1957, No. 3.
(4) Karl Marx, op. cit., p. 412.
(5) See Voprosy Ekonomiki, 1957, No. 3, pp. 120-121.
(6) Karl Marx, op. cit., p. 412.

Voprosy Ekonomiki, No. 5, 196

L. GATOVSKII:

Problems of Economic Stimulation of Technical Progress*

The building up of the material and technical basis of communism in the Soviet Union within the next 15 to 20 years, the accomplishment of our main economic task, the winning of time in peaceful competition with capitalism, the attainment of superiority in every line of modern technology — all this largely hinges on the maximum acceleration of technical progress.

Actual practice long ago proved that the socialist economic system possesses tremendous and ever increasing advantages over capitalism in the acceleration of technical progress, opening up the broadest vistas for the development of the productive forces. Only socialism and communism are capable of consistently carrying out the modern scientific and technical revolution which began in the mid-20th century.

Because of the public ownership of the means of production and the planned development of the national economy, socialist society is able to rationally distribute, concentrate and purposefully channel resources on a national scale and, ensuring the rapid introduction of the latest achievements of science and technology in production, it can accelerate scientific and technical progress. In so doing, it is not restricted by the limitations connected with private property, with capitalist profit as the regulator of production, the narrow bounds of the market, unemployment, commercial secrecy, etc.

Socialist labor increasingly exhibits its creative nature. The socialist system creates opportunities, entirely inaccessible under capitalism, to involve the masses directly and actively in technical progress, for with the rise in the technical level of production under socialism the well-being of the people grows, labor conditions improve, the working day is cut, skills are raised and the distinctions between manual and mental labor are gradually eliminated. The initiative of the working people in promoting technical progress is steadily increasing. In 1959, over 3,300,000 innovations and rationalization proposals were submitted, of which 2,160,000 were applied. The resultant annual saving exceeded 11 billion rubles.

The rapid progress of our economy, the remarkable successes of Soviet science and technology are a vivid confirmation of these advantages of the socialist system. In 1959, over 1,000 modern factories and other industrial units were commissioned, over 4,000 important measures to develop and introduce new technology were carried out, or 50% more than in 1958. But it is a fact that the advantages of socialism are not being adequately utilized in our country to accelerate technical progress. This is evidenced, above all, by serious shortcomings in the organization of material incentives to technical progress.

The tasks of accelerating technical progress must be accomplished not only through the centralized planning of the development and introduction of new machinery and technological processes, although this is of primary significance. It is also necessary to release, fully develop, mobilize and properly direct the tremendous creative initiatives of the masses, of local bodies, the workers and managers of enterprises, engineers and technician planners, designers, research personnel, inventors rationalizers and innovators in production. State plans for new technology must be not only fulfilled but also overfulfilled. They should be improved upon in the localities, supplemented and surpassed by ever new achievements in technical progress coming from below. Only with the broadest development of the initiative of the entire people is it possible to successfully cope with the highly complex tasks of accelerating technical progress in our coun

This initiative of the entire people must constantly rest both on moral and material stimuli which mutually reinforce each other. The role of both cannot help but increase in present-day conditions. The present article, devoted to economic problems of stimulating technical progress, does not deal with the development of moral or social stimuli. It does not touch upon questions of socialist emulation, question public control at enterprises designed to further technical progress. It does not cover the many-sided significance of communist work teams,

* A presentation of the problem. The author presented a paper on this subject at the session on social and economic problems of technical progress in the USSR held by the Division of Economic, Philosophical and Legal Sciences of the USSR Academy of Sciences.

which are opening up broad prospects in this sphere.

Life daily confirms that the drive of the people for advanced methods of production, in addition to being linked with social and moral stimuli, must also have a material foundation, closely bound up with these stimuli, in the form of a whole system of economic levers. This system includes bonuses (both individual and collective) for the manufacture and application of new technology; an appropriate system of wages; prices of new articles and new technology which encourages their production and consumption; methods of affecting and planning the cost of production and profitability of enterprises which manufacture or apply new technology; the establishment and utilization of special funds to cover the outlays of enterprises for the development of new technology; a depreciation system; budget financing and crediting. The proper planning of new technology and labor power, the correct organization of the material and technical supply, a rational system of planning indices and of appraising the work of enterprises are of great importance for the economic stimulation of technical progress.

All this makes up a single complex of problems. Each economic lever must be employed to the full and it should operate in the necessary direction in optimum combination with the others. Facts show that at times the improper use of material incentives results in one stimulus neutralizing another and an improvement in some indices being accompanied by a deterioration in others. Sometimes the plan for gross output is fulfilled and overfulfilled at the expense of the assortment of production, with a resulting increase in the share of obsolete output of little value for the national economy. A reduction of production costs may be achieved while the development of new machinery and technological processes is unsatisfactory. It is important that both the individual worker and the entire enterprise as an economic entity should be materially interested in technical progress. The attainment of high economic effectiveness of new technology, its rapid development and introduction must be materially encouraged.

The material stimulation of technical progress is now acquiring increasingly urgent, we might say political, importance. This is associated with the general policy of consistently applying and developing the Leninist principles of democratic centralism in economic management and the principle of rewarding workers for their labor achievements for the good of society. Yet, it is in the area of stimulating technical progress that we have the greatest lag in the application of the principle of material incentives.

Comrade A. N. Kosygin, in his report on the national economic plan for 1960 to the 3rd Session of the USSR Supreme Soviet in October 1959, pointed out that the tasks of developing new machines and replacing obsolete equipment were not carried out fully. At the plenary meeting of the State Scientific and Technical Committee of the USSR Council of Ministers in April 1960, which discussed the fulfillment of the 1959 targets for technical progress, K. D. Petukhov, the Committee's chairman, noted the advances made as compared with 1958 but stressed that the positive results must not divert attention from important shortcomings both in the development of new technological processes and equipment and in the utilization of the technical facilities already developed. He pointed to the huge untapped reserves for accelerating technical progress available in our country. Many plants and research and designing organizations are not coping with their assignments as regards new technology. The plans of a number of Union Republics, ministries and departments for the design and manufacture of models of new important machines and equipment are not being fulfilled.

There is no doubt that one of the major reasons for the non-fulfillment of this important section of the plan, along with manifestations of a bureaucratic attitude to the development and introduction of new technology, is the inadequate material stimulation of technical progress. The existing system of economic incentives frequently clashes with the tasks of accelerated development of technology. An improved, effective system of financial control has not been organized as yet, a faultlessly operating system which would encourage and place in an advantageous position those enterprises and groups of personnel who are successfully developing and introducing new technology; a system which would economically stimulate lagging enterprises, compel them to strive for the level of advanced enterprises. Cost accounting must be placed fully at the service of technical progress. Radical measures to eliminate existing shortcomings in this field are needed for this purpose.

The Plenary Meeting of the Central Committee of the CPSU held in June 1959 brought these shortcomings to light. Its decision stated: "... The principle of making workers, engineers and technicians of industrial establishments and building sites, specialists of research, planning and designing organizations materially interested in the development of new technology and its swiftest application in production is being insufficiently utilized in our economic management thus far. There are frequent cases when the personnel of enterprises developing new technology find themselves in a

worse position as regards the remuneration for their labor than the personnel of enterprises producing obsolete articles. Specialists in research, planning and designing organizations who are successfully solving major problems of the further improvement of machinery and technology have practically no material advantages in the remuneration for their labor compared with those who for years have contributed nothing new."

The Plenary Meeting mapped out the main ways of removing these shortcomings and instructed a number of organizations to work out definite proposals for economic stimuli to enterprises for introducing new machinery and technology, for integrated mechanization and automation of production, for greater material incentives to personnel in industry, construction and transport, research, planning and designing organizations for improvements in production technology. The Plenary Meeting issued instructions to work out proposals on the procedure for establishing prices of new articles, on the improvement of facilities for financing the development of new technology through the use of bank credit, enterprise funds and so on. Many organizations have been enlisted to carry out the assignments of the Plenary Meeting and much work has been done. The appropriate organizations and research institutes have undertaken to elaborate these questions.

Problems related to the economic stimulation of technical progress have been widely discussed of late in the press (including Voprosy Ekonomiki and Promyshlenno-Ekonomicheskaia Gazeta), at meetings of industrial personnel and at scientific conferences, in particular at the special session on social and economic problems of technical progress arranged by the Division of Economic, Philosophical and Legal Sciences of the USSR Academy of Sciences. A number of proposals have been submitted and different views on a wide range of problems have been expressed. A great deal of material has been accumulated. On the basis of this material and within the limited bounds of this article the author has tried to pose some of these problems.

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The main prerequisite, the normal basis for stimulating technical progress is that the stimuli must be organically bound up with the economic effectiveness of new technology. New technology is not an end in itself. The purpose of its introduction is to achieve a saving of labor time of society, to raise the productivity of labor, to ease and improve its working conditions and cut production costs.

The tangible economic advantages of new technology over the old must be brought out everywhere as quickly as possible. The performance indices of enterprises producing or applying new technology should really reflect the material benefit received by society.

This material benefit should be the source of the rewards to the producers and consumers of new technology. These rewards should be reflected in the profitability of enterprises which manufacture or introduce new technology, in the appraisal of their plan fulfillment, in the amounts of their enterprise funds, in the credit which they receive and, of course, in bonuses and labor remuneration. Technical progress and the development of new technology must not be based on "philanthropic" principles, on weakening cost accounting. Cost accounting must be strictly observed with regard to both producing and consuming enterprises. New technology must be economically advantageous for both.

It is important that efficiently operating enterprises which produce and apply new technology should be adequately profitable both during the period of developing the manufacture of new technology and after its serial production, after its introduction at enterprises which will employ the new technology and equipment.

In practice, however, there are frequent cases in which enterprises which do not produce new, technically advanced machines, do not introduce new technology and work on obsolete equipment, obtain a high profit. In the machine-building industry, for example, very many such enterprises obtain a much higher profit than plants which are actively developing new models and are constantly renewing their equipment. The executives of these enterprises, which in fact are backward ones, fulfill the plan without effort, reduce production costs little by little and receive premiums regularly. They live more "calmly," knowing no cares and hardships associated with basic innovations in technology, with a serious reorganization of production as a whole and of the technological process, with production risks which are often inevitable in undertaking the manufacture of new models. Some industrial executives prefer to fulfill and even slightly overfulfill, without any strain, the plan for the production of old models rather than to organize the manufacture of new models needed for the development of other branches of the economy. It is clear how such delays in shifting to new, technically advanced equipment run counter to present conditions of technical progress when the obsolescence of machinery has been greatly accelerated.

Comrade N. S. Khrushchev, in his speech at the June Plenary Meeting of the Central Committee

the CPSU, sharply criticized the existing practice of not only tolerating but encouraging, as it were, the continued output of obviously obsolete equipment by permitting the executives of such enterprises to receive bonuses. Citing the Saratov Gear-Cutting Machine Plant and its director Comrade Zakharov as a negative example, N. S. Khrushchev said: "This plant produces obsolete, inefficient bevel gear-cutting machines, although in 1955 new automated models were developed which were 50% more productive. Why does this state of affairs prevail? Because production of the old machines is well adjusted and is proceeding smoothly, whereas conversion to new lathes would involve readjustment. Why bother, since the Saratov Economic Council paid the workers of the plant several hundred thousand rubles in bonuses for overfulfilling the production plan, including 21,000 rubles to the director ... A certain percentage of the director's salary should have been withheld. For he is not only spoiling material but is supplying industry with tools which are already obsolete, thus doing a certain amount of harm to communist development. And is he the only director of this kind?"

It is a fact that major innovations in the organization of production, important measures in introducing new technology, the testing of new production and technical methods in a number of cases make it more difficult to fulfill the regular production plan. It is no secret that there are still quite a few industrial executives who, for these reasons, do everything to avoid new technology and the development of new types of output. They are also afraid (depending on their past "experience") that additional problems associated with the new technology, rather than improving, might even worsen the performance indices by which the operations of enterprises are judged, inasmuch as the expenses of developing new technology will temporarily raise production costs, reduce the profit rate and possibly lead to losses on the corresponding articles. As a result of all this, the enterprise becomes one of the laggards which do not fulfill the plan, which invariably affects the material interests of the workers and the executives of the enterprises, reduces their bonuses, etc.

Unfortunately, to this day the practice of establishing prices and planning profits often favors the production of obsolete equipment rather than that of new, technically improved models. Many examples have been and are being cited in the press showing how enterprises which manufacture obsolete models receive high profit rates amounting to many multiples of 10% on some models. All this naturally runs counter to the principles and basic rules of the employment of the law of value in a socialist economy. It turns out that new technology, the output of technically improved articles, is less profitable while old technology, obsolete models, are more profitable. As a result new technology, new articles are not materially rewarded while old technology, obsolete articles, yield bonuses. Serious adjustments are needed here.

The dynamics of production costs frequently run as follows: When the manufacture of new articles is first being developed their production costs temporarily reach a high level, while the production costs of analogous old products are gradually declining (owing to measures for the rationalization of production processes, etc.). At the next stage the reduction of production costs of old goods continues slowly but in the case of new goods, after their manufacture has been mastered, production costs decline rapidly, more than compensating for the previous high expenditures. At this stage the new articles are much superior to the old insofar as cost reductions are concerned.

There is one very important factor which makes it economically inadvantageous in a number of cases to develop and introduce new technology. The outlays for developing and mastering the manufacture of the new technology, new machines, equipment, mechanisms, machine tools, instruments, apparatus, new materials, etc., are included in the production costs of these goods.

The production costs rise correspondingly with all the attendant consequences arising out of cost accounting and the existing bonus system. If the wholesale prices at which the new articles are sold do not reflect this growth in production costs, these temporarily high outlays, the supplier plants which are developing new technology will have lower profit rates and the economic stimuli for its development may be undermined in such cases. In other words, the development of new articles will clash with the interests of these enterprises as economic entities. On the other hand, if wholesale prices are raised to reflect expenses for the development of new technology, this will have a negative effect on the economic stimuli to its introduction at consuming enterprises, since under such circumstances the old, technically inferior models are often cheaper and more advantageous than the new. In that case the introduction of new technology, the output of new models, will not conform to the interests of the consuming enterprises as economic entities. A contradiction arises here which must and can be overcome.

We should add that bonus systems for the manufacture and introduction of new technology are still poorly organized or are absent completely. Finally, allocations to the special enterprise funds can

often be made in much greater amounts by enterprises which produce obsolete equipment than by those which boldly and firmly are developing new models. Without eliminating all these shortcomings the proper economic stimulation of technical progress is inconceivable.

The June Plenary Meeting of the Central Committee of the CPSU noted in particular that in planning the outlays of enterprises, higher bodies do not take into account expenses "for the development of new models of equipment, machinery, construction elements and articles, for experimental work, for the establishment and operation of pilot plants and shops and also for experimental construction, do not assign the necessary material resources for these purposes, all of which adversely affects the performance indices of industrial enterprises and building organizations."

Where the economic conditions needed to ensure the appropriate profitability of efficiently operating enterprises in the period of mastering the production of new technology are absent because of high outlays, it is necessary to compensate such enterprises from a fund specially set up for this purpose. When the development period ends (and it must be as brief as possible), when the economic advantages of new technology can already be realized in the form of a reduction of production costs, the compensation of outlays for the development of new technology should be promptly stopped. Flexibility and timeliness in utilizing the development fund are needed.

It is necessary to exclude the influence of the outlays for the development of new technology on wholesale prices. Then favorable economic conditions will be created for the introduction of new technology in all branches of the national economy. The task is, on the one hand, to see that prices of new machinery should not be higher than prices of old machinery, which thus far is cheaper, and that on the other hand, the expenses of "originally building a new machine" (Marx) should be compensated to the supplier enterprises not through prices but in some other way. Then the principle of cost accounting will be preserved without detriment to both the consuming enterprise and the supplying enterprises.

A solution of the problems of compensating for the outlays on new technology has always been of primary significance for technical progress. Let us note that the period of development of new technology includes research and experimental work, the design and manufacture of experimental models, the preparation and raising of production to serial output, in a word, all the stages of development.

Examining in detail the influence of technical progress on raising labor productivity, reducing production costs, cutting the outlays of individual working time and the creation of excess surplus value, Marx pointed out that the reduction of costs based on technical progress is generally preceded by their temporary increase in the period of development. In the third volume of Capital he stressed how great are the expenses connected with the period of mastering new technology. "... The costs of operating an establishment based on a new invention are much greater than those of later establishments arising out of the ruins (ex suis os sibus) of the first one, as it were. This is true to such an extent that the first leaders in a new enterprise generally go bankrupt and only those who later buy the buildings, machinery, etc., cheaper, make money out of it." (1) An increase in the original cost of the new machines is a general economic regularity, a general tendency which can exert a considerable impeding influence on technical progress if it is not overcome.

The question of compensating for outlays on the development of new technology has now become very acute in the capitalist countries. The limits of the capitalist economy, of capitalist profit sharply restrict the possibilities for its solution. Nevertheless, huge sums are used to cover the high expenses of the development period. Credit sources are used widely for this purpose. Large firms and monopolies create special funds and the role of corresponding state subsidies has risen considerably.

In the United States there are quite a number of large funds specially used to cover development expenses. Various subsidies are given to scientific institutions and laboratories, various forms of financing experimental work are used, etc. A so-called system of "accelerated depreciation" is utilized. It is based on state subsidies given to the monopolies, naturally at the expense of the taxpayers. Corporations which step up the renewal of basic capital equipment and reduce the term of service of the equipment, say, from 10 or 15 years to 5-7 years are given preferential treatment by the state through the cancellation of corresponding sums of taxes. These sums run into billions of dollars annually. Their scale is illustrated by the following example: in two and a half years, between 1955 and 1957, state subsidies in the form of "accelerated depreciation" amounted to from 2/5 to 2/3 of the total capital investments made during this period in railway transport and electric power stations. (2)

In capitalist conditions, notwithstanding all these measures, development expenses continue to be a factor which essentially retards the application of new technology. The planned socialist economic

system has all the opportunities to utilize its advantages in this sphere too and to fully neutralize the retarding effect of high development expenses for technical progress.

This requires, first of all, appropriate changes in the existing practice of price formation. Numerous facts show what an adverse effect the establishment of temporarily higher prices to cover development expenses has on the introduction of new technology. Moreover, when high prices are preserved for an unjustifiably long period the producers of new technology are not stimulated to cut the development period and at times artificially drag it out — high prices guarantee the enterprises an "easy life" in many respects.

If wholesale prices are to stimulate consuming enterprises to introduce new technology, development expenses must not be included in the prices of the new articles. These prices should be fixed at the level of prices of analogous models already developed. Of course it is advisable to make adjustments which take into account the quality of the new models, the saving they yield, the higher productivity of the new machines, etc. At the same time it is important that these adjustments which increase the price should not be excessive and should not impede the application of new technology. Prices of new models established on this basis will temporarily not cover the high costs of the development period. How are the interests of the consuming enterprises to be combined with the interests of the producers in this case? We indicated the answer above. The only way evidently is to cover the difference between the original cost of the new machine in the development period and the cost of its reproduction in the next period. This could be done out of a special fund at the disposal of bodies which supervise the operations of enterprises. It could be named the new technology development fund. The most suitable source for the establishment of this fund would be contributions by enterprises of the corresponding branches. These contributions should be charged to the production costs of <u>all</u> enterprises in the respective branches. These funds could be combined into inter-branch funds. Economic councils and other bodies which supervise industrial enterprises, having these funds at their disposal, would redistribute them among branches, routing them to enterprises which are developing new technology and new products.

Thus, the actual expenses for developing and mastering new articles (from the very beginning of preparing the models up to the transition to serial production) would be evenly distributed among enterprises and would not increase the production costs of new articles. Consequently, the actual development costs would be singled out from production costs and would not serve as a price-forming factor. They would be covered not directly, through higher prices on new items being developed, but in a centralized way out of special funds.

Other methods have been suggested. It has been proposed, for example, that special, higher, accounting wholesale prices including development costs be fixed for enterprises producing new technology, while lower wholesale prices, excluding development costs, be set for consuming enterprises, the difference to be covered through financing the producing enterprises. But these methods are extremely involved, not to mention a number of shortcomings inherent in them.

The possibilities of utilizing other sources for the creation of development funds, besides contributions from production costs, should be studied. Some economists propose that funds be redistributed out of additional contributions from excessively high profits obtained by some enterprises. As pointed out earlier, because of shortcomings in planning prices and their unjustified variation, lagging enterprises which cling to old technology frequently have high profits. These profits, far from being utilized for accelerating technical progress, at times seem like a peculiar "bonus for technical backwardness."

There are frequent cases when consuming enterprises obtain a large economic gain from the employment of new technology, while producing enterprises which assure this gain receive no advantages whatsoever and even suffer losses. The possibility of replenishing new technology development funds out of contributions of consuming enterprises which receive an economic gain from its application is worthy of attention.

Proposals for establishment of new technology development funds have encountered objections. First of all there is the argument from the standpoint of "economies." The establishment of such funds demands additional resources. But how should the question of economies be approached? Reasonable economies means that one should not limit oneself to a consideration of only total expenses but should compare expenses with the results achieved and strive for greater results per ruble of expenses. Development costs are inevitable and they must be covered in one way or another. There is no evading a rational compensation for these costs. It is best to do it in an organized way and in time so as to accelerate technical progress, disclosing and tapping at the same time all possibilities and reserves for reducing the costs of developing new technology.

Apprehensions along the following lines are also voiced: will not a "development fund" create "hothouse" conditions for enterprises producing new technology? These considerations should be taken into account. The development of new items must proceed at a sufficiently intense pace, but there must be no rejection of every system of covering development costs on the pretext of preventing hothouse conditions. There must be no tendency to let enterprises fend for themselves in this regard. Such a stand will not help accelerate technical progress by any means. Of course if the financing of the development of each new item is excessively dragged out the rate at which development proceeds might be slowed down. But at the same time it should be stressed that the establishment and employment of an appropriate system for allocating and spending the development fund can become an effective stimulus to cutting the period of preparing the manufacture of new items. It is necessary to establish sufficiently brief, differentiated standard periods for the mastery of the production of new items and new technology so as to impel enterprises to reduce to a minimum the duration of the development period and the costs incurred for these purposes. The June Plenary Meeting of the Central Committee of the CPSU stressed the need to accelerate the processes of development of new technology.

The following proposal has also been made: the development fund should be used not for the entire development period but only for the stages of designing and manufacturing models. As for the stage of preparing serial production, here, it is claimed, no special compensation for expenses is needed. This viewpoint is inacceptable because serial production is associated with additional expenses which are not smaller but frequently even larger than in the preceding stages. Let us note that the production of a new model at the Moscow Low-Power Automobile Plant required almost a complete replacement of machine tools.

Of great importance is an improvement in the methods and indices of appraising the performance of enterprises during the period when the production of new items is being mastered. This is important because an increase of production costs, difficulties in fulfilling the output, labor productivity, labor expenditure plans, etc., frequently go hand in hand with the development of new items. Naturally these difficulties affect bonuses, allocations to the special enterprise funds and other forms of economic stimulation. There is an urgent need to work out the question of how to take all these elements into account in planning performance indices of an enterprise during the development period.

A consistent national economic approach is needed here. Frequently during the development period higher costs per ruble of goods produced at a machine-building plant are rapidly more than compensated by economies stemming from the introduction of the new machinery in other branches. Should not this be taken into account to one or another extent in establishing the planned indices for appraising the work of the given machine-building plant?

We have dwelled on problems of stimulating the development of new technology. But the matter is not limited to the development period. A corresponding task confronts us even after transition to serial production of these items. This task is connected not only with covering costs during the development period but also with stimulating enterprises which produce and utilize new technology after its development. For this period, too, financial control which encourages the further production and early application of new technology must retain all its significance.

After the development of new technology efficiently operating enterprises must be sufficiently profitable. Profit rates must not be too low or pioneering enterprises will be in a worse position than conservative ones. At the same time it is necessary to avoid excessively high profitability because pioneering enterprises may then "rest on their laurels" and lose any incentives for the further improvement of technology. All this requires flexibility in planning prices and profits.

There are also a number of unsolved problems in the practice of establishing prices and regulating profitability on new items after their development. Prices of new goods are usually fixed on the basis of a profit rate of not more than 3 to 5%, whereas prices of old goods usually yield a much higher profit rate. A legitimate question arises: why should an enterprise which developed new technology be put in a worse position insofar as its profit rate is concerned than enterprises producing obsolete articles and machines which, as N. S. Khrushchev put it, "are already great-grandmothers?"

In planning production costs and profit rates many economists propose that we proceed from the socially necessary average branch expenses. In these conditions, they argue, the law of value would be utilized more effectively. Enterprises which have lower individual outlays than the socially necessary ones would be able to have higher profit rates.

It seems to us that there is a grain of truth here. But we should avoid exaggerating the role of average branch indices, because with such a wholesale stereotyped approach the different conditions in

which various enterprises operate (production capacities, capital investments, material and technical supply, natural conditions, etc.) would be ignored. As a result, a worse situation would be created for efficiently operating enterprises which are in less favorable conditions, while undeserved advantages and privileges would be provided for enterprises which do not operate as well but enjoy favorable conditions — a "hothouse" atmosphere would be created for them. The profitability norms should provide incentives to good work. They should not serve as a passive reflection of various conditions which do not depend on the performance of the enterprises.

At the same time we must not tolerate a situation in which profitability norms encourage production of backward technology, as is often the case under the present practice of planning prices and profitability, when pioneering enterprises which have just developed new technology are less profitable than enterprises which evade this work. Without indiscriminately applying average branch profitability as a universal criterion, we must not go overboard in the opposite direction, as is often the case now. To ignore completely the average socially necessary expenses, to plan prices merely on the basis of individual production expenses, does not create advantages for advanced enterprises which would conform to the demands of the law of value, but often puts them in a worse position. The result is that the actual profits of some enterprises do not at all reflect the real role of these enterprises in creating the surplus product for society.

In view of this, can we consider as normal a situation in which, for example, the profit rate on obsolete goods in the machine-building industry often amounts to 15 to 20% while on new lines it cannot be planned higher than 3 to 5%? Such price policies, far from encouraging, often actually "fine" an enterprise for energetic work in the development of new technology. If an enterprise expedites the replacement of old models by new ones, puts out new lines ahead of time, produces them in larger quantities than envisaged in the plan, the economic indices of this enterprise will be below those called for by the plan. The need for corresponding changes in the practice of planning prices and profits is obvious.

An old problem, of which many are "sick and tired," still remains unsolved and much attention has been given to it in the press (specifically, mention should be made of the relevant articles in Kommunist). We refer to the situation in which poorly operating enterprises are often assigned lower easier plans and afforded privileged conditions. Moreover, they regularly receive bonuses and are encouraged in other ways. On the other hand, efficiently operating enterprises, as soon as they introduce technical improvements and expand their production capacities on this basis, lose their advantages and often undeservedly end up in the ranks of lagging enterprises and are deprived of bonuses and other rewards which their personnel won at the cost of great effort. This is often due to the following circumstances: As soon as there are signs of success by an enterprise in developing new machinery, technological processes or progressive methods of production organization, it is at once given new, sharply increased assignments whose fulfillment involves considerable difficulties and frequently leads to a decline in performance indices. In other words, in some cases the better working enterprises are placed in a worse position. To this day there are instances when at the end of the year plan assignments are shifted from poorly operating to efficiently operating enterprises. Such practices weaken the economic stimuli to improve production.

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To increase the material interest of workers in the acceleration of technical progress it is vitally necessary to use a bonus system and to introduce important modifications in the wage system at respective sections, and also to change the procedure for making allocations to the special enterprise funds.

Serious improvements are needed in the bonus systems for achievements in the production and introduction of new machinery and technological processes. The new bonus regulations adopted in 1959 are a big step forward. They have a great stimulating effect, concentrating the attention of executives, engineers, technicians and the entire personnel of enterprises on the reduction of production costs. But these regulations are not specially designed to fundamentally solve the problem of stimulating new technology. In order to solve this problem the June Plenary Meeting of the Central Committee of the CPSU issued instructions to work out appropriate bonus measures.

The existing forms of bonuses do not provide adequate stimulation for the design, development and introduction of new technology. Bonuses for new technology are issued only in the machine-building industry, which cannot be regarded as normal.

Incidentally, there is still a widespread opinion that problems of economic stimulation of technical progress (including the establishment of development funds and bonus systems) apply only to branches of the machine-building industry, to the manufacture of equipment, machinery, mechanisms, precision instruments and apparatus. It goes without saying that when we speak of technical

progress and its stimulation we mean, in the first place, the production of the instruments of labor. This is the main and decisive thing. But the system of stimulating technical progress must cover other fields as well: the production of new, improved objects of labor, including, for example, the necessary metallurgical plants which produce new metals, the chemical industry which produces new building materials and also the sphere of production and application of new forms of power, etc.

The concept of technical progress is much broader than the production of new instruments of labor. New materials and new sources of power represent an integral part of modern technical progress. We mean not only new, improved and more efficient machines, equipment, precision instruments, but also new types of raw and other materials as elements of the productive forces, as well as new, highly efficient technological processes and the most advanced methods of production organization which are inextricably bound up with the country's electrification, integrated mechanization and extensive automation of production processes. Diverse forms of modernizing the production apparatus are of essential significance for technical progress. Along with the sphere of direct production, which is basic, as time goes on technical progress will extend ever more rapidly to the sphere of management and accounting, to the sphere of material and cultural services to the population. All this should be taken into account in solving the problems of stimulating technical progress.

Why should workers who promote technical progress in branches other than machine-building not be encouraged accordingly? Many instances have been cited in the press when enterprises outside of the machine-building industry in some area put out new items yielding a greater economic effect than new models in the machine-building industry. But bonuses were received only by the latter. For example, Promyshlenno-Ekonomicheskaia Gazeta pointed out in October 1959 that workers in the machine-building industry under the Kuibyshev Economic Council who obtained a saving of 73.3 million rubles on new products were given bonuses, while workers in other industries, including oil and chemicals, who obtained a saving of over 82 million rubles on new products received no bonuses.

But this is not the only point. The bonus system in the machine-building industry as such has important defects which lower the effectiveness of the bonuses. Bonuses are not set in advance and their payment is dragged out greatly. Many workers do not even know about the bonuses or their size, and the receipt of a bonus is regarded as some kind of a happy accident or pleasant surprise. At times bonuses are issued years after the corresponding work had been completed. The funds allotted for bonuses are clearly inadequate. The bonus system in the machine-building industry is insufficiently linked with many important tasks of technical progress, poorly reflects the reorganization of industrial management and the present role of the economic councils. Finally, the bonus system is poorly integrated with the indices of economic effectiveness.

It is necessary to introduce a specially devised, improved bonus system for new technology which will be applicable not only to machine building but also to other industries as well. It is exceedingly important to determine bonuses for new technology in advance, to include them in the plan and to pay them in time. In some cases it is desirable to allow advance payments of future bonuses. Bonuses for the development and introduction of new technology should be tied to its economic effectiveness. The size of bonuses should be fixed depending on the annual economic effect yielded by the new, improved items. Indices of economic effectiveness and the size of the bonuses should be determined simultaneously and included in the plan.

The June Plenary Meeting of the Central Committee of the CPSU determined the criteria which should be used as guides in the elaboration and introduction of new technology and technological processes. The Plenary Meeting stressed that the new technological processes, machines, mechanisms and building elements must "satisfy the requirements of the most rational and economical use of social labor and material and money resources, ensure an increase in output, an improvement in quality and a reduction in production costs, a growth of labor productivity, lighter and healthier working conditions, observance of safety rules, acceleration of construction work and a decline in its cost, a reduction of the recoupment period of capital investments as compared with the best achievements of Soviet and foreign science and engineering."

Bonus funds for new technology should be established at economic councils and other bodies which supervise enterprises (for the major part of the funds) and also at enterprises themselves (the smaller part of the funds). Allocations from profits could be the source of these funds.

It is most advisable to establish bonus funds for new technology on the basis of a certain percentage of the annual total payroll for the production personnel of enterprises. This percentage naturally should be properly differentiated. Specifically, it should be higher for designing and research personnel.

A proposal that is worthy of attention is that

executives of enterprises should not be given bonuses if the plans for the development and introduction of new technology are not fulfilled because of the enterprise's own fault, while the fulfillment and overfulfillment of production plans is achieved by producing obsolete articles.

The bonus system should apply only to persons who actually take part in or really ensure the development of the new technology, the new articles. Bonuses should also be given for the adoption of the best foreign experience. No transfer of money from the bonus funds must be allowed for other purposes.

It is necessary to establish a bonus system in which the bonus payments for new technology will really reflect the economic effectiveness of this technology and at the same time the payments will not be dragged out. Prior to the introduction of new technology, particularly during the stages of designing and making initial models, it is often difficult to determine more or less exactly its actual economic effectiveness. But, on the other hand, if the payment of bonuses is delayed until the manufacture of the new technology is mastered and its economic effect following its introduction is determined, we will again be faced with delays in the payment of bonuses and their effectiveness will be greatly reduced.

The way out, first of all, is to fix the amount of bonuses in the annual plan on the basis of preliminary calculations of economic effectiveness of new technology and, second, to pay bonuses "by stages." This would mean the establishment of the following procedure: After the completion of each stage, bonuses would be awarded for the work done in developing new technology on the basis of the technical and economic calculations which should be made at the given stage. Only after these calculations are verified in detail, following the development and introduction of the new technology, will the final bonus payments be made.

The stages in bonus payments could be the following: for designing, that is, after the approval of the submitted design and all the technical specifications; next, for the manufacture and testing of experimental models, that is, after their acceptance by a special commission; finally, for the mastery of serial production, when factory documents with the technical and economic specifications for the finished articles have become available.

Such payment of bonuses by stages would ensure the direct dependence on the amount of the bonus received by the workers of each section on the actual results of their particular work. It goes without saying that all this requires the prompt appraisal of designs and acceptance of experimental models, and the inclusion of the new articles in the plan for serial production. Only under these conditions will such a bonus system be sufficiently effective.

Nor is it possible to really stimulate the manufacture and introduction of new technology and new articles without appropriate changes in the organization of wages. It is essential to eliminate as quickly as possible cases in which workers who shift to the manufacture and development of new technology, far from being encouraged, at times even receive lower wages. Here the principle of distribution according to work is often violated.

An important stimulating effect could be derived by the transfer, for a corresponding period, of the workers engaged in mastering the production and introduction of new technology to a time-plus-bonus wage system so that the sum of bonuses would comprise a considerable share of the basic wage rate (up to 1/3 and more). In this instance an indiscriminate approach is impermissible, caution is needed, but this measure is undoubtedly feasible and necessary in many cases.

Another question of great importance is that of remunerating workers engaged in the manufacture of new, super-fine articles and in the performance of essential operations requiring a high degree of precision and skill, for example, in the manufacture and setting up of experimental models. Yet in a number of cases labor is remunerated without taking account of these circumstances, on the basis of wage systems and norms employed in serial production. In some cases the decisive element in wage payments is the mass or the weight of the output. The quality of experimental, preparatory and finishing work is not considered. Here, too, corresponding modifications are needed.

Technical progress is expressed in the improved designs of macinery and equipment, in reductions of their weight, which means a saving in metal and other materials. But planning indices fixed in the form of the value of total output in rubles or in units of weight of many items of the machine-building and other industries clash with the tasks of technical progress and the improvement of the quality of goods. Comrade N. S. Khrushchev pointed to this in his speech at the June Plenary Meeting of the Central Committee of the CPSU. We know what resistance designers who try to reduce the weight of machines often encounter — these machines are planned in terms of weight with all the material advantages following therefrom for the enterprises. We ought to definitely abandon weight indices of plan fulfillment in some branches and increase the role of indices of assortment and quality of output.

The inclusion of plans for the development of technology in the general state plan and giving them priority in material supply and finances, as indicated in the decision of the June Plenary Meeting of the Central Committee of the CPSU, has a great stimulating effect on technical progress.

Assignments in regard to new technology of general national significance are becoming an integral part of the national economic plan. State plans must provide for the expansion of the output of new models of equipment and the removal from production of obsolete models.

In assessing the economic activities of enterprises today, account must be taken of the fulfillment of plan assignments for the design, development and application of new machinery and technological processes.

It is especially important that production and technical measures for the development and introduction of new technology be fully backed by corresponding priority financing and by material and technical supply.

The consistent accomplishment of this task means that the law of the balanced development of the economy will be employed with new force and great effectiveness for accelerating technical progress.

But the essential shortcomings existing here must be rapidly eliminated. The actual state of affairs is such that frequently the planned development of new technology, far from enjoying priority in material and technical supply, is in general shifted to the background and is provided for from time to time by way of some additional work. Such practices strike at the very root of the economic stimuli to technical progress. It is necessary to put an end to instances (which are still widespread) in which new models of equipment, whose supply is envisaged in the coordinated and approved plans for new technology, are not put into serial production. As a result the supply of this equipment to the corresponding enterprises is disrupted and the production of new, technically improved articles is delayed. Here is one of the numerous examples of unsatisfactory material and technical supply of operations for the development of new technology: almost 1/3 of new technology assignments planned for 1960 in the Uzbek Republic will have to be provided with material resources not envisaged in the plan in advance. These resources will have to be "found" in a so-called operational manner. Coordination of plans for the manufacture and introduction of new technology with plans for material and technical supply is one of the major economic prerequisites for accelerating technical progress.

In addition to providing material and financial resources for planned measures for new technology, there arises an ever growing need to ensure corresponding measures not provided for by the plan. We know that work by enterprises on measures not included in the plan is of great importanc for the development of technology. It is impossibl to make advance provisions from above for these jobs and enterprises need resources for their fulfillment. These resources can come from the special enterprise funds and also be covered by credit, the role of which naturally is not at all lim ited to financing jobs not envisaged in the plan.

The stimulating effect of the special enterprise funds is relatively small now. This is explained first of all by their insignificant size in relation to the total payroll or the working capital which enterprises have at their disposal. If, for example, all the special enterprise funds are divided by the total number of factory and office workers in the country the average amount per employed person will be some tens of rubles per year. All the sum from the special enterprise funds spent for satisfying the material and cultural requirements of the workers also yield an average of some tens of rubles per employed person annually. Naturally, at many enterprises the share of these funds is co siderably higher. But even there the economic ro of these funds is small so far.

Yet these special funds could serve as a powerf factor not only for the individual but above all for the collective stimulation of personnel in raising the economic performance indices of their enterprises. As society advances to communism, alon side moral stimuli, the importance of various forr of collective material incentives should also grow The concern of each worker not only for his own section but for improving the work of the enterpri as a whole will rise. In this respect, too, the spe cial enterprise funds will undoubtedly exert a stim lating effect.

We must not underestimate the possibilities an the prospects of special enterprise funds in stimu lating workers and executives to promote technic progress and in providing enterprises with an ad tional source of funds for improving technology. But the system of special enterprise funds is not adapted to this task at present. The tasks of acce erating technical progress are not coordinated with the procedure for the establishment of these funds.

The pioneering work of advanced enterprises in developing new technology does not effect the amounts in their special funds. Enterprises whic develop new, technically improved articles have advantage as regards these special funds. As pointed out earlier, some advantages in this resp

ıre actually enjoyed at times by enterprises which ıvoid developing new technology, inasmuch as in a ıumber of cases they have higher profit rates.

Although so far the special enterprise funds have ;enerally played a relatively small part as eco-ıomic stimuli, nevertheless such "favoritism" with egard to lagging enterprises as compared with ad-anced ones cannot help but have an adverse effect, veakening the material interest of the personnel of nterprises in developing new technology.

There is an urgent need, first, to increase the mounts of the special enterprise funds so that they an serve as an important stimulating factor for nterprises; second, to make contributions to these ınds depend on the share of new, technically im-roved articles in the total output of enterprises; hird, to allot a certain part of these funds for ex-enses on technical improvements, including mod-rnization of equipment, fulfillment of new tech-ology measures not envisaged in the plan and also or the payment of bonuses for these jobs.

Modernization of equipment holds an important lace in improving technology in industry. About 00,000 machine tools will be modernized in the urrent seven-year period. Raising the average roductivity of each machine tool by 25% will yield ı economic effect estimated at about 10 billion ıbles in seven years. On the other hand, mod-rnization expenses will amount to some 2.8 billion ıbles. The June Plenary Meeting of the Central ommittee of the CPSU stressed that the non-lfillment of assignments for the modernization of solete equipment was intolerable. The release the initiative of enterprises is one of the pre-quisites for a rapid and determined step forward modernization. This, in turn, requires that a nsiderable part of the funds for modernization tually be at their disposal, that greater opportuni-s be provided to use depreciation sums for defi-te purposes in conformity with the concrete needs enterprises. Marx stressed that the depreciа-n fund was a source for constant expenditures improving and expanding production.

Credit can serve as an important factor in the onomic stimulation of technical progress. The perience of the State Bank in granting credit for w technology for terms of one, two or three ars has undoubtedly yielded positive results. At same time the exceedingly limited nature of s credit is generally recognized. A decision has en adopted recently on the extension of credit new technology, both as regards the period of edit and the range of projects covered. The role ocal bodies in granting credit has been en-ıced. There is no doubt that this will increase l more the importance of credit in stimulating technical progress. It is necessary to ensure that material resources are obtainable with the credit. We are of the opinion that in the future credit financing of new technology should be extended more and more. In the future, long-term credit will be able, along with budget financing, to play its part successfully in major planned measures for the development of new technology.

The dogma that under socialism long-term credit can be employed only in cooperative enterprises and that it is impermissible for capital investments in the state sector has wide currency to this day. Whence the origin of this opinion? From the experience of the past. Indeed, in the past the practice of credit financing for capital investments in the state sector proved unsuccessful. But some 20 to 30 years ago the situation was different, the tasks were different, the conditions in which enterprises operated were different, economic accounting played a different part, the present possibilities of financial control were absent, etc. Consideration of the time factor, effectiveness of capital investments, the reduction of their period of recoupment are acquiring ever greater significance. Today the possibilities for the development of credit in the state sector have grown. The credit form has a number of specific advantages in the sphere of capital investments as well. It is a much more flexible and effective method of financial control than budget financing. The fact that credit is given for a definite time and must be repaid combines it organically with the entire system of cost accounting. That is why it affords great opportunities to exercise effective financial control of enterprises, to promote the proper choice of capital development projects, to cut the periods for commissioning these projects and the periods of recoupment of the capital investments, to speed up the turnover of fixed assets. At the same time it is important that bank agencies verify more carefully the degree of effectiveness of new technology, the economical expenditure of resources for the designated purposes.

We can hardly agree with another rather widespread idea, that the reproduction of fixed assets is a sphere that should be covered solely by centralized planning and that the cost accounting functions of enterprises have no bearing on it whatsoever, extending merely to working capital. Naturally, the decisive and determining part is played by centralized state planning of the reproduction of fixed assets. Without this a planned economy is impossible. But at the same time it is imperative to increasingly stimulate the initiative of enterprises and enhance their interest in the proper use of fixed assets, acceleration of their turnover, reduction of periods for construction and recoupment of capital investments.

It is here that the need for wider introduction of cost accounting is particularly great. Credit can serve as one of the effective levers stimulating the initiative of enterprises in the effective employment of resources allocated for the reproduction of fixed assets. It is not a question of destroying the established practices but of gradually introducing credit into the sphere of planned capital investments. The question of a further differentiated increase in the periods of credit and its extension to more projects should be studied.

Socialism radically alters the social and economic conditions of technical progress and its results. This is a manifestation of the historic advantages of the socialist system. Capitalism impedes the introduction of integrated mechanization and automation of production processes. The threat of a huge growth of unemployment which modern technical progress brings to the capitalist system cannot help but operate with growing force. The facts show that under capitalist conditions the automation of industry often leads to the dismissal of one half or more of the workers. While accelerating technical progress to the utmost, socialism is able to ensure the right to work and the full employment of the population, to raise living standards constantly and swiftly.

For the consistent realization of these advantages of socialism it is necessary to combine the introduction of advanced technology, integrated mechanization and automation of production with a corresponding, planned redistribution of labor power on the basis of voluntary transfers of workers to other sections, changes in the occupational composition of the working people, etc. This implies additional measures for the retraining of factory and office workers, enhancing their technical skills, giving them effective aid in transferring to other jobs, creating for this purpose favorable housing, cultural and other conditions for the workers. This will open up still wider opportunities for industrial executives to introduce new technology.

The constant improvement of measures for the economic stimulation of technical progress is a primary national economic task which will be on the agenda for many years and will require the exertion of great efforts by our economists.

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Footnotes

(1) Karl Marx, Capital, Vol. III, 1954, pp. 109-110 (Russian edition).

(2) Survey of Current Business, 1957, No. 9, p. 5.

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G. SOROKIN:

The Building of Communism and Long-Range Planning

The gradual transition from the first to the second and higher phase of communism is a systematic process. It presupposes the conscious and concerted efforts by millions of people to mobilize all their strength and resources for the purpose of clearing the way for and assisting actively in the earliest and complete establishment of the new, the advanced system. Gigantic organizational work on the part of the Communist Party and the Soviet state, thorough elaboration of the general prospects of the economic development of the USSR and consistent implementation of the magnificent plans of communist construction are required in order to build communism in the shortest period of time and to make rational use of material and labor resources for this purpose.

The idea of scientific long-range planning was Lenin's. It will be recalled that the program for the country's electrification — the first state plan for socialist construction, covering a period of 10 to 15 years — was drawn up under his guidance in 1920. This plan was fulfilled a long time ago and its boldest projections have been considerably surpassed. Of course, the country today is faced with much more complex problems than those which the authors of the first plan for electrification were called upon to solve. But the methodological approach employed by the GOELRO has not lost its significance to this day.

Thanks to the victory of the socialist revolution it was possible to undertake the building of the socialist, and later of the communist, society. At first, however, the Party and the Soviet state had very little material to work with in preparing a concrete program for socialist and communist construction. "... We are moving towards communism inevitably, unavoidably," said V. I. Lenin in November, 1918. But in elaborating he went on to say: "We do not claim exact knowledge of the road." (1) But after the first steps in socialist construction had been taken Lenin could view from a different angle the question of the possibility of economic prediction. In 1923 he emphasized: "... we now have an opportunity which rarely occurs in history of ascertaining the period necessary for bringing about radical social changes; we now see clearly what can be done in five years and what requires much more time." (2)

Long-range planning stems from the nature of the tasks for which our Party and the Soviet state are working, from the main goal of the Soviet people, the building of a communist society in the USSR. It would be wrong to imagine that the socialist society could grow into a communist society within a few years, or even within a five-year period. Processes of this kind require considerably longer periods of time. It should be remembered that what is involved is a powerful comprehensive development of the productive forces with a high level of socialization of production. Take, for example, the construction of the Volga cascade of hydroelectric stations. It is clear that the construction of the entire chain of electric stations on the greatest European river (from the source to the mouth, and on its tributaries) cannot be accomplished in five to ten years. The Volga and its tributaries must be utilized on the basis of a multiple purpose project which would simultaneously solve the problems of power production, shipping, agriculture and municipal economy.

The Volga project is no exception. The rational construction and operation of vast enterprises is unthinkable without long-range planning. Marx wrote that "it is the necessity of bringing a natural force under the control of society, of economizing, of appropriating or subduing it on a large scale through the work of man's hands, that first plays the decisive part in the history of industry." (3) In the period of the comprehensive construction of communism, large-scale projects acquire especially great significance. And they require overall plans covering long periods of time.

Under socialism, however, long-range planning is not only a matter of necessity. The socialist state has all the possibilities for the effective implementation of its plans. As the owner of the basic means of production it is in a position to know in advance both the requirements of society and

its production resources, and to channel them on a planned basis into economic and cultural development. Socialist property, which unites production on a social scale, serves as the basis for the systematic cooperation of labor on a national scale. The development of relations of comradely cooperation and mutual assistance lies behind the mass emulation movement which has become one of the forms of participation of the broad masses in planning and in the management of production. Consistent implementation of the Leninist principle of democratic centralism stimulates the initiative of the republics, regions, industrial enterprises, state farms and collective farms in planning and in carrying out the plans.

The growing significance of scientific planning in the socialist society has been emphasized by the Communist Party again and again. The 20th Congress of the CPSU adopted a decision to prepare a long-range plan for building communism, for developing the Soviet Union's economy and culture. The 21st Congress outlined a program for communist construction, defined the basic tasks of the Soviet national economy and examined a concrete Seven-Year Plan of economic and cultural development for 1959-1965. Its historic decisions call for greater stress on long-range planning and furnish the basis for the successful solution of methodological and practical problems of planning. In line with these directives of the Party, the Soviet Union is preparing a plan for socialist economic and cultural development for the coming 15 to 20 years.

The general long-range plan will be a concrete economic program for building communism in the USSR. Thanks to the great progress in the development of the productive forces and in the socialization of production and to the strengthened organizational activity of the state, it is possible to embrace all the basic elements of reproduction in the long-range plan. It should contain provisions for the further development of the productive forces and for improvements in socialist production relations. The general goals in production are to overtake and surpass the USA in per capita output of the most important items of production, to create the material and technical base of communism and, on this basis, to attain a higher productivity of labor than in the leading capitalist countries and to create an abundance of products. The magnitude of these tasks may be judged from the following. In 1958 the per capita industrial output of the USA was more than double that of the USSR and per capita agricultural output was approximately 40% higher than ours. Productivity of labor in US industry was 100 to 150% higher and in agriculture about 200% higher than in the USSR. Consequently, in order to surpass the economic level of the USA in ten years Soviet industrial production will have to more than double, and if American production keeps on growing it will have to increase even more. Naturally, thus far it is possible to cite only provisional dates and increases required in production. Final targets will be defined only after detailed technical and economic calculations have been made.

Ways of solving social and economic problems will be elaborated along with the preparation of the economic program for building communism. Communism will grow out of socialism as its direct continuation. In the socialist society we already have many visible elements of communism which are gradually being developed and improved in the process of the conscious and energetic activity of the working people for the fulfillment and overfulfillment of the economic plans.

Naturally, not everything can be translated into the language of figures and assignments. No one can determine the exact date on which the state will wither away or foresee the exact year in which all the members of society will adopt a communist attitude towards labor. However, it is necessary to estimate, in accordance with the real possibilities, the approximate dates involved and to take account of the concrete conditions for the solution of the social and economic problems of communism. It is quite possible, for example, to foresee the material and technical resources necessary for converting agricultural labor into a variety of industrial labor, the means of furthering the socialization of collective farm production (growth of indivisible funds, construction of collective farm and inter-collective farm enterprises with the aid of state investments, etc.), and the means required for a radical change in the life and cultural activities of the rural population. All this plays a most important part in the systematic eradication of the essential distinctions between town and country.

Systematic measures are also required for solving the problems connected with the elimination of essential distinctions between intellectual and physical labor. It is a question of calculating the period and measures required to raise the cultural and technical level of all workers and collective farmers to that of engineers and technicians. Nor is this all. The technical level of production will have to be raised to such a level that labor in any branch of the national economy will involve the regulation and control of automatically performed production processes and will obviate completely the need for physically arduous operations (as well as for unskilled and low-skilled labor).

An equally complex problem of the general plan

is the gradual development of communist forms of distribution. A certain portion of the social product is already distributed free of charge. This portion will grow with the approach of communism. In time society will apparently take upon itself full responsibility for the upbringing and education of children (their free maintenance in pre-school institutions and state boarding schools, provision of clothing, shoes, food, textbooks and other school supplies for school children), for the maintenance of the aged and incapacitated members of society, etc. But the development of communist forms of distribution must be combined with the consistent implementation of the socialist principle of organization of production and distribution. Unless this is done we shall be confronted with levelling and the disappearance of material incentives to the growth of labor productivity and improvements in skill. It is, therefore, important to find the correct combination of the socialist and communist principles.

In the materials of the 21st Congress of the CPSU we also find a reflection and substantiation of the most important problems of communist construction of interest to the socialist camp as a whole. This involves problems connected with the development and consolidation of the world socialist system, with the transition of the socialist countries to communism and with the strengthening of the bonds among them. As a result of the implementation of the Seven-Year Plan in the USSR and the high rates of growth in the other socialist states the countries of the world socialist system will produce more than 50% of the world's industrial production in 1965. Moreover, the economic development of the socialist countries will be gradually levelled out and they will all begin the transition to the higher phase of the communist society more or less simultaneously. The planned, proportionate development of the world socialist system requires the coordination of the economic plans of the socialist countries. At the May, 1958 conference of representatives of the Communist and Workers' Parties of the socialist states the necessity for all socialist countries to prepare long-range economic plans for several five-year periods was recognized.

The concrete economic program for building communism in the USSR can be worked out only by the combined efforts of a large group of planning specialists, engineers, scientists and innovators from amongst the ranks of workers and collective farmers. In accordance with a fine tradition established in the USSR, the economic plans are widely discussed by all the working people, but the preparation of the corresponding projects is impossible without scientific research. In this article I would like to direct attention to some questions connected with long-range planning.

The basic practical task of communist construction on which chief stress is being laid today is that of building the material and technical foundation of the communist society, of bringing about another powerful advance of the productive forces. The general plan is necessary primarily for comprehensively elaborating and defining with a high degree of certainty the ways and means of converting the material and technical base of socialism into the material and technical base of communism. This problem cannot be solved without a thorough analysis of the conclusions of science and technology and their application to production. "... The economist must always look ahead in the direction of technical progress," emphasized V. I. Lenin. "Without this he will immediately find himself lagging behind..." (4) Planning of technical development is closely connected with all the major sections of the general plan. Unless account is taken of technical progress it is impossible to determine the growth in the volume of production and in the productivity of labor, the types and costs of capital construction, the structure of production, the standards for the expenditure of materials and the costs of production. It is also essential that account should be taken of the social consequences of the use of advanced technology, its influence on the use of labor resources, the training of cadres, etc.

However, the plan must not be confined to the solution of urgent technical problems of the day. It must envisage probable new solutions which will be thoroughly realistic. The GOELRO in its day summed up the world-wide experience in the development of technology and correctly appraised the main avenues of its further progress. In this way it served as the basis for all economic projects. Today, too, the concrete preparation of a general plan is unthinkable without a thorough analysis of the technical level of the socialist countries and of the whole world and without a determination of the paths of future technical progress. Should the preparation of a plan be based on the old standards for capital investments, labor expenditure and rates of production growth, the result would be an artificially limited construction program. Calculations based on standards which take technical progress into account change the picture completely. Because proper account was taken of modern tendencies in technical development, the Seven-Year Plan was able to provide for favorable proportions in the development of various branches of fuel production. Substitution of natural gas and oil for coal during the seven-year period should yield a saving of more than 125 billion rubles, which is more than enough to cover investments in the chemical industry during this period.

Technical progress is radically changing the old ideas about methods of production and the significance of some of the industries which constitute the foundation of the national economy. The chemical industry is becoming one of the most important branches of production, the supplier of materials for every kind of use. Academician N. N. Semonov has calculated that in 15 to 20 years world production of polymeric materials (plastics, synthetic fibers, synthetic rubber) will reach 2/3 of the present production of steel, with the production costs and capital requirements approximating those needed in the production of iron and steel, and lower than those in the production of nonferrous metals. Polymers are becoming the strongest competitors of metal. The well known British physicist Bernal holds that chemistry has a tendency to invade and change all spheres of material production, so that metallurgical production in particular may perhaps soon be fully converted to the use of chemical methods. "It will be necessary," he says, "to create entirely new substances with the desired properties which do not necessarily exist in nature, and not only passive, but possibly also with active ones, as, for example, the capacity for automatic and controlled contractions imitating muscular action." [Retranslated from the Russian — editor.]

The 21st Congress of the CPSU defined the main directions of technical progress in the USSR. These are, first and foremost, electrification with the use of new sources of energy, nuclear energy included, comprehensive automation and mechanization of industrial enterprises, and the application of chemistry to production. These are not contradictory but interconnected and interdependent trends. Only by relying on them is it possible to correctly define the technical policy and program for furthering the use of new, highly efficient machines and other equipment, as well as other measures connected with new developments in engineering.

Special attention was devoted to questions relating to the planning of new technology by the Plenary Meeting of the Central Committee of the CPSU in June, 1959. The meeting criticized the failure to include in the annual national economic plans provisions for the development and introduction of new techniques which are of general state significance. It found it necessary to concentrate attention on the solution of a problem raised by the 21st Congress of the CPSU, i.e., that of eliminating arduous manual labor through the comprehensive mechanization of production processes. Accordingly, the planning authorities were directed to prepare projects for the comprehensive automation of branches of production, construction and transport, a program for furthering the use of radio-electronic equipment and plans for the development of specialization in industry and construction. The meeting also recommended that the submission of proposals for technical improvements in production and modernization of equipment be organized in all the enterprises and at all the economic councils. All this provides invaluable material for the general plan. Improvements in planning will promote the adoption of new technical methods in production.

A task which can be posed for solution in 15 to 20 years is the technical re-equipment of all the branches of the national economy. The total amount of capital investment provided for in the Seven-Year Plan is almost equal to the total amount of investment during the years of Soviet rule. Consequently, roughly speaking, 50% of the fixed capital of the national economy will be renewed in the seven-year period. Much more thoroughgoing undertakings in the realm of technical reconstruction will have to be accomplished in 15 to 20 years. This will be a profound technical revolution.

The most important aspect of the technical re-equipment of the national economy is electrification and the speed of its development. Speaking at the conference on power construction on November 28, 1959, N. S. Khrushchev said: "... The long-range plan for the electrification of the country calculated for 15 to 20 years and the long-range national economic plan of the same duration should become the main pivots of our program for building communism." Electrification is the general and universal power supply basis for the automation and mechanization of production, for advanced technology, especially in metallurgy, chemical production and the engineering industry. It is the main groundwork for the technical reconstruction of agriculture and transport. Transmission of electric power over long distances will lead to drastic reductions of fuel shipments and create new conditions for the distribution of production, inasmuch as every inhabited point can be supplied with electric power regardless of the local power potentialities.

It is difficult to overestimate the importance of comprehensive electrification. It would be impossible to eliminate arduous manual labor, to design new technological projects and to control automatic systems of machines without electrification. Only the comprehensive electrification of the country can create the necessary conditions for eliminating the essential distinctions between intellectual and physical labor. It will provide a most effective means of converting agricultural labor into a variety of industrial labor and for reorganizing village life as required by the tasks of communist construction. Electrical means of transportation and communication, radio and television satisfy the growing

requirements of people for mutual intercourse, for the most accessible and direct political and cultural information, and tend to equalize living conditions in the center and on the outskirts, in town and country. Electrification accelerates the socialization of labor and production. On the basis of electric power and transportation systems, labor in the vast economic regions will merge into a single process, and in the future local power systems will develop into a unified system of the state and of a number of states.

An analysis of the development of electric power production in the past (in connection with the general development of the national economy and of its specific branches) is of definite value in planning electrification. Industry has hitherto been the main consumer of electric power in the Soviet Union. We present the relevant data below.

Increase in Gross Production, Electricity Consumption, Labor Productivity and Electric Power Consumption per Industrial Worker in Soviet Industry (1913 = 1)*

	1940	1950	1955	1956	1957	1958	1965 (plan)
Gross industrial output	8.5	14.8	27.3	30.2	33.2	36.0	66.0
Consumption of electric power	22.1	41.8	78.1	87.5	95.4	106.3	230.0
Ratio between growth of production and consumption of electric power (index of gross production = 1)	2.59	2.80	2.82	2.89	2.87	2.95	3.48
Productivity of labor	4.2	5.8	8.4	9.0	9.5	10	15
Electric power consumption per worker	8	12	18	19	20	21	42
Ratio between growth of labor productivity and electric power consumption per worker (index of labor productivity = 1)	1.9	2.1	2.1	2.1	2.1	2.1	2.8

* Calculations based on data of the Central Statistical Administration of the USSR, Narodnoe khoziaistvo SSSR v 1958 godu, pp. 60, 112, 149 and 151, and on the target figures for 1959-1965.

It is natural that the consumption of electric power should grow faster than production, with the result that the amount of electric power per unit of gross production increases. This is indicative of the adoption of new technological processes based on electrification. Additional expenditures of electric power for technological purposes are greatly in excess of economies due to cuts in norms of specific consumption. Figures show that the electrification of Soviet industry is proceeding rapidly and that consumption of electricity is growing approximately three times as fast as gross production. In some periods, however, the relationship between the growth of production and the supply of electric power deteriorated. In the Fifth Five-Year Plan gross production grew almost at the same rate as the consumption of electric power. This relationship changed slightly in favor of electric power consumption in 1956-1958. Under the Seven-Year Plan the increase in electric power consumption is due to exceed the growth of gross industrial output by 22%.

There is also a direct connection between labor productivity and the consumption of electric power per worker. The main factor in the growth of labor productivity is technical equipment, and the index of electric power consumption per worker reflects in the most general way the overall growth of the technical equipment of workers. In the past the electric power consumption per industrial worker grew approximately twice as fast as labor productivity. Between 1950 and 1958, however, there was no change in the relationship between these indices. Important changes in favor of the index of power consumption per worker will occur only in the Seven-Year Plan period. This is one of the most important prerequisites for the substantial increase in labor productivity which is essential

for the achievement of communism. Evidence of the more rapid growth of power consumption per worker is also found in other countries. Labor productivity in the manufacturing industries of the USA between 1940 and 1953 increased by 45% while electric power consumption per worker rose by 87% in the same period.

Soviet electric power production is growing much faster than in the capitalist countries. Annual rates of increase in electric power production between 1951 and 1959 were 12.5% in the USSR, 8% in the USA and 7.7% in France. In accordance with planned provisions electric power production in the USSR will increase rapidly in the seven-year period and in subsequent years.

According to preliminary estimates of the Ministry of Electric Power Station Construction cited by N. S. Khrushchev at the conference on power construction, the production of electric power in the USSR will increase from 291 billion kwh. in 1960 (according to the annual plan) and 500-520 billion kwh. in 1965 (Seven-Year Plan), to 900 billion kwh. in 1970, about 1,500 billion kwh. in 1975 and about 2,300 billion kwh. in 1980. From the standpoint of the rate of electrification this program for electric power production implies: a) an increase of about 600 to 700% in power station capacities in 15 to 20 years; b) maintenance of the existing high rates of growth in electric power production for the duration of the general national economic plan; c) a 140 to 160% rise in the average annual increases in electric power production in 1966-1975 as compared to the increases provided for in the Seven-Year Plan; d) achievement of the existing levels of per capita production of electric power in the USA in about ten years; e) a doubling of the 1958 American level of output in 15 years (1975) and a tripling of this level in twenty years (1980).

The preparation of a general plan for electrification is a difficult task, of course. It requires providing the necessary equipment, building materials, labor power and finances for the construction of electric power plants. It is also important to coordinate the speed of electrification with the growth of all the branches of the national economy, with the solution of the problems connected with improving the living and cultural standards of the people. Finally, a great deal of work must be done to coordinate the general economic plan and the program for the electrification of the Soviet Union with the plans of the other socialist countries.

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Creation of the material and technical base of communism presupposes the expansion of the economy in all the economic areas of the USSR. This means that long-range plans should be drawn up not only with due account for the factor of time but also for the factor of space. The territorial aspect of the plan is of great significance because of the colossal size of the territory of the USSR and the great variety of climatic and historical conditions affecting the development of each region. All the Soviet long-range plans are invariably compiled on the basis of the economic areas. The GOELRO Plan singled out eight large areas. In the five-year plans (both before and after the war) the assignments for production and construction were distributed among the union republics and major economic areas. The Seven-Year Plan also has its territorial aspect. It seems to us, however, that greater stress should henceforth be placed on this aspect of long-range planning. This is important for a number of reasons.

Exceptionally important tasks are set in the general plan for the Eastern regions. About 75% of all the coal reserves, about 80% of the hydroelectric power, 80% of all the timber, the main deposits of non-ferrous and rare metals, vast resources of chemical raw materials, iron ore and building materials are concentrated in the East. The future increases in the productive forces of the East were defined at the 20th Congress of the CPSU. In the next ten years Siberia will be converted into a most important producer of coal and electric power, a major center of the fuel-consuming and electric power-consuming industries, and particularly of the production of aluminum, magnesium and titanium, as well as one of the biggest centers of electric metallurgy, coal-chemical, and electro-chemical production. A third powerful metal-producing center, capable of supplying 15 to 20 million tons of pig iron a year, will be created in Siberia within 10 to 15 years. Other industries will also be rapidly developed in the East. There will be large machinery-producing centers, output of light and food industries will be raised, and agricultural production will expand as well.

The great magnitude of these tasks may be gleaned from the following. Production of pig iron in Siberia grew from 1.5 million tons before the war (1940) to 2.4 million tons in 1955, an increase of 60% in 15 years. In the coming 15 years it is due to increase by 500 to 700%. This means that production of pig iron in Siberia will be growing 2.5 to 3.5 times more rapidly than in the country as a whole. The same is true of electric power production. According to the estimates of the Electric Power Institute of the Academy of Sciences of the USSR, the rate of growth of Siberian electric power production in the next 15 years will be almost three times as high as in the Soviet Union as a whole.

The accelerated development of the Eastern regions is one of the main tasks of the general plan. The Seven-Year Plan allocates special resources for the rapid economic development of the Eastern regions. These regions will receive more than 40% of the total capital investments planned for the seven years. It is also planned to attract additional labor power to these districts by creating all the necessary conditions for efficient work, healthful living conditions and the necessary cultural services. Thus far, certain conditions are less favorable in the Eastern regions. There are certain differences between the levels of development of the regions of Siberia and the general standards achieved in the Soviet Union, as may be seen from the following table.

Comparative Figures for the Development of the USSR as a Whole and Siberia (1958 data)*

	USSR	West Siberian Regions	East Siberian Regions
Proportions			
of the population as a whole	100	5.9	3.3
of the urban population	100	6.0	3.7
of the rural population	100	5.7	3.0
of the total number of workers and employees	100	6.5	3.7
of industrial production capital	100	5.2	3.9
Per capita production and sales			
cotton fabrics (meters)	27.6	6.3	11.8
woollen fabrics (meters)	1.45	0.20	0.17
leather footwear (pairs)	1.7	1.0	0.77
retail sales (in rubles)	3240	3130	3630
Cultural and medical services (for every 10,000 inhabitants)			
Number of students in the higher and specialized secondary schools	194	167	153
Number of specialists with a secondary or higher education	358	288	306
Number of doctors	17	13	15.5
Number of hospital beds	73	70	82
Number of places in children's nurseries	56	54	76
Number of children in kindergartens	112	102	141

Taken from the following statistical yearbooks: Narodnoe khoziaistvo SSSR v 1958 godu, pp. 9, 101, 102, 103, 167, 170, 807, 821, 879 and 893; Promyshlennost SSSR, 1957, p. 18; Narodnoe khoziaistvo RSFSR v 1958 godu, pp. 39, 40, 145, 149, 160, 371, 380, 382, 394, 458, 461, 489, 496, 498.

Although the Siberian regions have reached an average level of industrial development, they are far behind in the production of textiles and shoes and they have a relatively smaller number of higher and specialized secondary schools. Without a differentiated approach and without giving priority to the East, it would be impossible to take any real steps towards a more rational distribution of productive forces.

In order to quicken the development of the Eastern and other economic regions and eliminate disproportions in the economic development of various regions, it is necessary to place greater stress on long-range territorial planning of both industrial and agricultural production.

The zonal system of agriculture is of particularly great importance in this regard. Agricultural specialists have established 39 climatic and economic zones for which the most rational methods of agriculture and the most favorable combinations of the various branches of husbandry are being worked out. Zonal specialization provides the basis for scientifically planning the amount of production per unit of land area, i.e., for determining the optimum productivity per unit of farm land, with the proper combination of branches of production and the use of advanced agricultural technology. Distribution of agriculture according to zones creates a sound basis for planning production costs and profits. Zonal systems of agriculture can take final shape if proper account is taken of the overall specialization of the respective economic areas and of the existing and future requirements of the state as a whole and of specific regions for definite products.

The building of a communist society presupposes the rapid development of all the republics and regions of the country without exception, their economic and cultural advancement. Particular attention should therefore be devoted to the preparation of special provisions for the Union Republic in the long-range plan. In our opinion it is necessary to calculate the following indices per capita of the population: the social product, national income, industrial and agricultural production, state capital investments, expenditures on social and cultural needs, real incomes of the population and retail sales. Other important indices are: labor productivity and electric power consumption per worker in specific branches and in material production as a whole; the composition of the able-bodied population employed in the national economy; the absolute and relative numbers of workers and employees; the national income balance in the republics, real wages and salaries, collective farmers' incomes in money and in kind, the volume and standards of consumption; the educational level of the population; the available number of specialists, doctors and medical institutions; the provision of housing, schools, children's institutions and boarding schools; the degree of development of cinematography, radio and television, the networks of clubs and libraries. All these indices would make it much easier to plan the distribution of capital investments and budget allocations in order to meet the basic requirements of the citizens in all the Union Republics in a balanced manner.

For a long time territorial planning lagged behind branch planning. The latter was the province of numerous ministries, while regional planning was conducted mainly by small departments of the State Planning Committee of the USSR which did not always cope with the complex tasks connected with the regional aspect of planning. In the recent past the State Planning Committees of the Union Republics dealt only with questions relating to local economy and they could not therefore take an active part in territorial planning of production of nation-wide significance. The backwardness of territorial planning may be illustrated by the following. Until very recently there has been no generally accepted network of economic areas which could serve as a basis for long-range planning. The need for planning on the basis of large economic and geographical regions was confirmed by the resolutions of the 21st Congress of the CPSU. As noted at the Congress, this will "contribute to the correct geographical distribution and the most economical territorial organization of the national economy of the Soviet Union."

Another major shortcoming of territorial planning lay in its passive character: assignments of the special ministries for production and construction were often automatically incorporated in the regional plans without adequate consideration for the general economic principles which should underlie the distribution of production. Territorial planning also lagged behind insofar as the time factor was concerned. The plan was at first prepared according to branches of production, and then the plan based on regional distribution was combined with it. Incidentally, the GOELRO electrification plan was prepared simultaneously for branches of production and for specific regions. In the summary plan it was naturally necessary to correct the regional plans with due regard for the material and financial possibilities of the state and to select from these plans the most essential and most important elements. But the regional plans simplified this selection because those who prepared these plans were not restricted by rigid preliminary limits and they were therefore in a position to

reckon with the need for the integrated development of the regions and for the fullest use of their resources.

The new general plan should be worked out in detail for the economic regions, with due regard for the general interests of the state, the specialization of the regions, their many-sided development and the need for rational relationships among them. The improvement of long-range planning for major economic regions will assist in the coordination of the work of the economic councils in the sphere of specialization and cooperation. Improvements in territorial planning are possible if we consider that the State Planning Committees of the Union Republics have been strengthened and have accumulated experience in planning the economies of the republics. There is a powerful apparatus available for territorial planning in the form of the economic councils, which take charge of the overwhelming part of industrial production and construction. This offers particularly broad possibilities for the comprehensive planning of production.

Regional (republic) balances of production and consumption of specific products are of great value in the preparation of plans for economic areas and Union Republics. They make it possible to reveal surpluses or deficits of particular products in the respective region (republic), and their totals indicate the transportation balance, i.e., the total volume of incoming and outgoing shipments. These balances show where surpluses of the most important products are to be found and where these products are scarce. They furnish the basis for the development of rational interregional ties and a unified transportation network. Another fundamental factor in regional economic planning, along with the material balances, is the balance of labor. Improvements in methods of preparing regional balance sheets will help to improve territorial planning

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The problem of accelerating the development of the national economy as a whole, of winning the greatest amount of time in the peaceful economic competition with capitalism, is the fundamental problem of the Seven-Year Plan, of the entire period of communist construction, and consequently of the general plan as well.

The experience of the USSR shows that the high rates of development of the socialist economy are inseparably connected with technical progress. This may be illustrated in particular by the table shown on the top of the following page.

In the period under review the national income grew faster than fixed capital in the national economy, and the output of industry faster than its fixed capital. This is indicative of the growth of technology and of the effective use of fixed capital. Under socialism the latter is used most fully and evenly, and its growing efficacy is therefore determined mainly by new technology. At the same time, as the table shows, labor productivity grew faster than fixed capital per worker. This means that factors other than growing technical equipment contribute to the growth of labor productivity, i.e., the improved organization of labor and the higher skill of the workers. These affect the rates of economic development in the same direction as does the efficacy of the fixed capital.

In preparing the general plan it is important to explore the possibilities for accelerating the rates of growth of production. These rates are determined by many circumstances, the most important of which are (for the period of the general plan): the rate of accumulation in the national income, the effectiveness of capital investments and of the new technical equipment, and the growth of labor productivity. The higher the rate of accumulation, the sooner the capital investments will yield returns, the higher the efficiency of each new machine, and the higher are the rates of growth of production. The relationship between the parts of the national income used for accumulation and for consumption have remained stable for many of the postwar years. Approximately 75% of the national income of the USSR goes for consumption and 25% for accumulation and other social requirements. Nor has the Seven-Year Plan introduced any essential changes in this relationship, and it may remain in this state throughout the period of the general plan.

However, it should be remembered that the use of new technical equipment (the share of accumulation remaining unchanged) makes it possible to quicken the rate of economic growth by raising the efficiency of each unit of production capacity. Historical experience tells us that, as a rule, the labor-saving effect of a new machine exceeds its production costs, i.e., it is a means of furthering the growth of labor productivity and, given certain preconditions, it may become a means of accelerating the rate of growth of production. What is required is that we study the influence of new technical equipment on the rates of growth under the concrete conditions of the planned period, with due account for the nature of the new machines and equipment.

The effectiveness of fixed capital and the productivity of labor will increase sharply during the period of the general plan, thanks to the technical revolution. Improvements in capital construction (i.e., reductions in the periods of construction, cuts in construction costs, rational allocation of investments by branches, etc.) will make it possible to

Rates of Growth of Production Capital, National Income, Labor Productivity and Gross Industrial Production
(1940 = 100)*

	1950	1955	1958
Fixed capital in production in the national economy	134	220	302
National income	164	281	371
Relationship of rates of growth of fixed capital to national income (index of growth of fixed capital = 1)	1.22	1.28	1.23
Fixed capital in industry	154	264	325
Gross industrial production	173	320	390
Relationship of rates of growth of capital to gross industrial production (index of growth of fixed capital in industry = 1)	1.12	1.21	1.20
Industrial production personnel in industry	129	158	175
Relationship of rates of growth of capital to industrial production personnel in industry (index of growth of industrial production personnel = 1)	1.19	1.67	1.86
Productivity of labor in industry	137	198	226

* Taken from the yearbook of the Central Statistical Administration of the USSR, Narodnoe khoziaistvo SSSR v 1958 godu, pp. 54, 59, 152 and 660. Indices for industry apply to 1957.

put fixed capital into operation more rapidly, improve its composition and help to quicken rates of growth. The high rate of accumulation will also continue in the future. All this makes it possible to plan high rates of growth of production without creating excessive strains in the national economy. Going further, at a definite time, when elements of the latest technology will have been accumulated, it should become possible to raise the rates of growth of labor productivity and of industrial production to still higher levels. Consequently, as socialist production develops on the basis of technical progress it constantly creates new material possibilities for increasing rates of communist construction. It is important to take fuller account of this normal tendency in the preparation of long-range plans for the development of our country.

The general long-range economic plan now being prepared will be a most magnificent program of economic progress. It is based on the tasks set by the 21st Congress of the CPSU, that of overcoming and surpassing the economies of the leading capitalist countries within the shortest possible period of time, creating the material and technical base of communism, and achieving the highest labor productivity and consumption standards in the world.

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Footnotes

(1) V. I. Lenin, Collected Works, Vol. XXVIII, p. 195 (Russian edition).

(2) Ibid., Vol. XXXIII, pp. 441-442.

(3) Karl Marx, Capital, Vol. I, p. 517 (Russian edition).

(4) V. I. Lenin, op. cit., Vol. V, p. 125.

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A. PASHKOV:

Prospects for the Fusion of the Two Forms of Socialist Property*

Marxism-Leninism is the union of the most advanced revolutionary theory with the most advanced revolutionary practice. Lenin invariably emphasized the decisive importance of the experience of the revolutionary struggle and of socialist construction, of the experience of the masses, for a correct definition of the concrete paths of society's movement towards socialism and communism. The concrete paths and forms of communist construction may be disclosed and defined only by taking account of practical experience and by studying the tendencies of development in the socialist society.

N. S. Khrushchev's report and the speeches of the delegates at the historic 21st Congress of the CPSU, as well as the resolutions of this Congress, contain a scientific substantiation and definition of the concrete paths, forms and methods of communist construction in the USSR. They emphasize the role of the masses and the highly important role played by the Communist Party and the Soviet state in the organization and leadership of this construction.

The Marxist-Leninist views of the two phases of communist society and of the transition from socialism to communism are brilliantly developed and thoroughly concretized in the materials of the 21st Congress of the CPSU. They disclose, confirm and concretize the Marxist-Leninist thesis on the natural character of the transition from socialism to communism.

N. S. Khrushchev's report and the resolutions of the 21st Congress of the CPSU contain a deep scientific substantiation of the main regularities governing the transition from socialism to communism: 1) the decisive importance of the building of the material and technical base of communism; 2) the further improvement of socialist production relations and their development into communist production relations; 3) the development of the socialist organization of the state by broadening democracy in every possible way, by enlisting the participation of all citizens in the management of economic and cultural activities, in the administration of public affairs, and the transfer of some of the functions of state bodies to the jurisdiction of public organizations; 4) strengthening the communist education of the working people; 5) the gradual but not diminishing rate of the transition of society from socialism to communism; 6) the tendency towards equalization of the levels of development of the socialist countries and their more or less simultaneous transition to communism.

The control figures for the development of the national economy of the USSR in 1959-1965, considered and approved by the Congress, represent a concrete program for building communism in our country at the existing stage in the solution of the basic economic problems of the USSR, in the existing conditions of the peaceful economic competition between socialism and capitalism.

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Socialism has won an enduring victory in the USSR because the working people of the Soviet Union, led by the Communist Party, in their creative work for the development of new forms of economy relied upon the objective economic law of the correspondence of production relations to the character and level of development of the productive forces. The Communist Party is systematically using this economic law in the interest of the people. In the existing period of comprehensive construction of the communist society it is being used for the gradual transition from socialism to communism in the USSR. And therein lies the profound foundation of the realistic character and great vitality of the Seven-Year Plan of the USSR endorsed by the 21st Congress of the CPSU and of the general strategic plan outlined by the Congress for building communism in our country.

The main element in the plan for building communism is the creation of the material and technical base of communism, a tremendous advance in the productive forces of the socialist society. The magnificent plan for creating the material and technical base of communism in the USSR was drawn

* This article is designed to pose the question.

up with due account for the fact that the socialist production relations existing in the USSR today afford full possibilities for the continued rapid growth of the country's productive forces, for their new, powerful advance.

The rapidly growing productive forces of society determine the need and possibility for the further improvement of the production relations of socialism, for their gradual development into the production relations of communism.

Communist construction requires the skillful, thorough and integrated use of the law of the correspondence of production relations to the nature and level of development of the productive forces. This is the most general, and at the same time the basic regularity governing the construction of communism, the gradual transition of society from socialism to communism. This regularity is vividly reflected in N. S. Khrushchev's report to the 21st Congress of the CPSU and in the resolutions of this Congress.

The economic law of the correspondence of production relations to the character and level of development of the productive forces operates more concretely as the law which determines the ownership of the means of production by the nature of production of material wealth and, in the final analysis, by the character and level of development of the instruments of labor. As an economic category, property represents the production relations of people, a definite social form of appropriation by people of the means of production and products of labor.

Marx treated bourgeois property as the totality of all production relations in bourgeois society. This means that bourgeois property in the means of production determines the character, the social nature of all the other elements, the links in the production relations of capitalism. In the same sense it may be said that socialist property is the totality of all production relations under socialism, and communist property may be treated as the totality of production relations under communism. As the most important relation determining the social nature of all the other elements, the links in the production relations of a given society, property in the means of production itself depends upon the level of development of the productive forces, upon the nature of the production of material values. Private property in the means of production corresponds to the scattered, individual production of material values, whereas collective production determines the need for public ownership of the means of production.

Determination of the form of property in the means of production (and consequently also in the products of labor) by the form and character of the production of material values (in the above-mentioned sense) is an economic law which operates both under socialism and under communism. Furthermore, it also operates during the transition from socialism to communism.

The improvement of the production relations of socialism implies primarily the development of public socialist property in the means of production now prevailing in the USSR, and this is possible only on the basis of the further development of the instruments of labor, of all the productive forces of society, of the further socialization of the very process of production of material values.

The transition to communism requires the improvement of state property and raising cooperative-collective farm property to the level of general public property, as a result of which there will be a fusion of these two forms into the common property of all the people. The growth of public ownership of the means of production depends upon the degree of development of the social character of production. Therefore, the improvement of socialist property in the means of production in the USSR is possible only through the further development and growth of socialist cooperation of labor, greater socialization of the production process itself, greater social division of labor, development of specialization and cooperation in production, its concentration and combination. This process also strengthens the relations of comradely cooperation and mutual assistance among the workers of socialist production, the manifold growth of the interrelated activities and other production relations among people.

The state form of socialist property is not only the predominant but also the leading form of socialist property. It is a more advanced form than the cooperative-collective farm form of property. This character of state property is expressed not only in its wider scope as general public property but also in the greater degree of socialization of production and labor in the state economy of the USSR. State property, the property of the whole people, affords greater scope, greater possibilities for the socialization of labor and production, for its concentration, specialization and cooperation, and this also ensures a higher level of labor productivity in the state sector of the Soviet national economy.

Communist property in the means of production will correspond to the highest stage of socialization of production and labor, a stage which will be much higher not only in comparison with the property now existing in the collective farms, but also with that now existing in the state economy of the Soviet Union. Our state economy possesses vast

reserves and possibilities for the further socialization of production and labor. These reserves are still greater in collective farm production.

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The question of the prospects for the future development of the two forms of socialist property and of their fusion into a single form of general public property is among the cardinal questions of the construction of communism. This is a matter of the means of eliminating the distinction between the two classes of the socialist society, the working class and the collective farm peasantry, of doing away with the economic foundation of the essential distinction between town and country.

The resolutions of the 21st Congress of the CPSU substantiate a very important tendency of communist construction: "The fusion of the collective farm-cooperative form and of the general public form of property will take place in the future not as the result of curtailing collective farm-cooperative property, but by raising its level of socialization to that of general public property with the aid and support of the socialist state."

Collective farm-cooperative property and general public property will be brought closer together and the boundaries between them will be obliterated by raising the level of socialization of collective farm production. The concrete channels for the growing socialization of collective farm production and, consequently, for drawing collective farm-cooperative property closer to general public property are, as N. S. Khrushchev pointed out in his report to the 21st Congress of the CPSU, the uninterrupted growth of the indivisible funds of the collective farms, the increasing spread of collective farm production to all branches of agriculture, the development of inter-collective farm production contacts, various forms of cooperation among collective farms, increasingly greater unification, a specific merging of collective farm means of production with state-owned means of production belonging to the whole people. Of great significance in this process is the gradual transformation of farm labor into a variety of industrial labor.

The continuous growth of the indivisible funds of the collective farms plays a special role in bringing collective farm-cooperative property closer to general public property, for these funds furnish the economic basis for the further development of collective farm production and in their social and economic nature are to a large degree already close to state property, i.e., to capital which belongs to the whole people in the USSR.

Indivisible funds are primarily collective farm production capital, i.e., the means of production employed on the collective farms.

A most important means of production in agriculture is the land, which in the Soviet Union is the property of the state. It is granted to the collective farms for perpetual use free of charge. Just as the capital of the state farms, the means of production which are part of the indivisible funds of the collective farms are used on land which belongs to the whole people. This is, of course, highly significant for the social nature of the indivisible funds of the collective farms as means of production. It indicates that these funds are of the nature of property belonging to the whole people.

Most important, however, is the fact that insofar as its fundamental features are concerned, the social nature of the indivisible funds of the collective farms does not differ from the capital of state socialist enterprises. Like the capital of state enterprises (industrial, agricultural and transportation), collective farm property in the indivisible funds constitutes public, socialist property. Unlike bourgeois property, which gives the owner the right and the possibility of living at the expense of others, socialist property in the means of production (both state and collective farm-cooperative property) gives no one a right of this kind. Under socialism the right to the product stems only from the participation of people in labor applied to the publicly owned means of production. And in this respect there is no difference between the means of production included in the indivisible funds and the capital of state enterprises.

Like the capital of state enterprises, the means of production which constitute part of the indivisible funds may not be divided up or distributed among the workers. In this respect, the collective farm means of production do not differ even today from the capital of state enterprises of the USSR. This is of decisive importance for the prospects of fusing the two forms of public property. This common feature of the indivisible funds of collective farms and of the capital of state enterprises is determined by the socialist nature of both and by their identical role in the socialist reproduction of the social product.

Because the indivisible funds of the collective farms have many important features in common with general public property in the means of production, the steady growth of the indivisible funds of the collective farms, which makes for the increased socialization of collective farm production, draws collective farm-cooperative property closer to general public property and gradually obliterates the boundary between them.

While possessing the same social and economic features as the capital of state enterprises, the indivisible funds of the collective farms nonetheless

constitute a form of group property of the collective farms. This may seem contradictory, but in reality there is no contradiction here. The point is that the group property of the collective farms is public, socialist property, and not a variety of private, capitalist property; that the social and economic distinctions between the indivisible funds of the collective farms on the one hand, and the capital of the state enterprises on the other hand, do not represent fundamental social distinctions. What we have here is an essential difference within a given category, within public, socialist property, within the system of socialist production relations.

There is already no difference between the capital of collective farms, insofar as its basic social features are concerned, and the capital of socialist state enterprises which represent the general property of the whole people.

Some economists, while correctly emphasizing that the indivisible funds of the collective farms possess a number of specific features, features of general public property, nevertheless draw a contrast between the indivisible funds and collective farm production. They claim that by their social nature the indivisible funds of the collective farms are a higher form than collective farm production, inasmuch as the latter is divisible and therefore constitutes group property in the full sense of this term, while the indivisible funds do not belong to the category of group property. It is impossible to accept this contrast between the social and economic nature of indivisible funds of collective farms on the one hand, and the nature of collective farm production on the other.

We know that the form of property in the means of production determines the form of property in the products turned out by these means of production. This also applies, of course, to collective farm production. Here too, the social and economic form of the product can neither advance ahead of the social and economic nature of the means of production (the indivisible funds of the collective farms) nor lag behind it. The divisibility of collective farm production does not reduce the degree of its social and economic maturity as compared with the indivisible funds, for it is determined by the role of production as the result of the process of labor. Every product is designated for production purposes or for personal consumption, and its distribution is therefore subject to definite laws. A certain portion of the output of state enterprises is also divisible. It is distributed among the workers according to their labor, but this does not in any sense reduce the general public character of the property in this production.

The general public importance of the indivisible funds of collective farms lies precisely in the fact that the goods produced with the aid of these funds are involved in the process of socialist reproduction. This production is used for satisfying the requirements of society for food and agricultural materials.

Consequently, however important the process of advancing collective farm cooperative property to the level of general people's property and its fusion with state property into general public property may be, this process will not constitute any revolutionary change in the form of property, a transition from one form to a fundamentally different form of property. Improvement in state property and advancement of collective farm-cooperative property to the level of general public property, and the subsequent fusion of these two forms into a single form of general public property, constitute and will constitute a gradual change within the limits of one and the same qualitative category: public property in the means of production. But this quality itself will be gradually improved and raised to a new, higher stage in the process of gradual transition to communist property.

The collective farm-cooperative form of production relations is serving and can serve for a long time to come to develop the productive forces in agriculture, as is emphasized in the resolutions of the 21st Congress of the CPSU. Agricultural production as such (field and animal husbandry, etc.) is being conducted and may still be conducted for a long time within the limits of the property of one collective farm. Other economic activities of the collective farms, which are not connected directly with agricultural production (construction of electric power plants, irrigation canals, enterprises for processing agricultural products and for the production of building materials, building operations, etc.) even today often transcend the limits of the property of one collective farm. Any discrepancy which may be found between the comparatively limited possibilities of the property of one collective farm and its requirements for various purely industrial undertakings is resolved by the rapid growth of inter-collective farm property and in a particular type of fusion of collective farm means of production with state, general public means of production. The purely industrial undertakings necessary to the collective farms are connected with electrification, mechanization and automation of agricultural production.

Inter-collective farm property, of course, is a more advanced form than the property of a single collective farm. A still greater advance is represented by the property stemming from the specific fusion of collective farm means of production with

state means of production, i.e., state-collective farm property.

These two forms of public property represent, as it were, consecutive stages in the transition from the group property of a single collective farm to general public property. The question arising in this connection is: is it absolutely necessary for collective farm property in the means of agricultural production to go through both of these two higher forms of development of collective farm property? Or can we say that their emergence is connected only with the specific features of the industrial production which the collective farms themselves have to organize?

Collective farm property in the most important means of agricultural production need not pass through the stage of extensive development of mixed, state-collective farm property in its further evolution towards fusion with general public property. This opinion is evidently indisputable. Mixed, state-collective farm property in the decisive means of collective farm production, which now constitute the basic part of the indivisible funds of collective farms, would to a certain degree amount to a return to a past stage in the development of collective farming, when the same land had two masters: the state (which, as represented by the MTS, was the owner of the most important agricultural equipment) and the collective farm. This situation was ended with the reorganization of the MTS and there is no need to return to it, even in a different form.

A more complex question is presented by the joint property of collective farms, by its role in the development and improvement of collective farm property.

Some Soviet economists believe that a special stage in the development of collective farm-cooperative property should be the formation of common-collective farm property within the limits of a region, a republic and of the Soviet Union as a whole. In the opinion of these economists, state property will merge not with the property of separate collective farms (which perhaps will become consolidated but will still remain the property of separate collective farms) but with common-collective farm property, i.e., the combined property of all the collective farms of the Soviet Union.

This idea was suggested, for example, by Academician S. G. Strumilin in his interesting book, On the Road to Building Communism. (1) In his opinion, life itself suggests the need for unifying the collective farms into one system in each region, republic and in the Soviet Union as a whole. Inter-collective farm centers should be entrusted with extensive functions in the organization of the necessary processes of economic life on the collective farms: that of combining all the productive resources of the collective farms, securing to them the existing indivisible funds for perpetual use, instituting emergency funds and special funds for renewing and modernizing obsolete technical equipment, establishing identical working conditions and equal rates of payment for labor on all the unified collective farms, reallocating surplus products and land rent among the collective farms, levelling out rates of accumulation, organizing mutual assistance, providing all the necessary material supplies to the collective farms and centralizing the sales of the marketable production of the collective farms. The common-collective farm property which will emerge through this unification of the collective farms, writes S. G. Strumilin, will not differ in essence from general public property. The system of consumers' cooperative societies of the USSR headed by Centrosoiuz is given as an example of this type of organization. Before S. G. Strumilin, the idea of the need for district or zonal unions of collective farms, and also for similar unions within the limits of regions, republics and the USSR as a whole, was suggested by V. Sherstoboev and V. Shotskii during the nationwide discussion of the future development of the collective farm system and the proposed reorganization of the machine and tractor stations. In their opinion, unions of collective farms should take part in solving the main economic, organizational and technical problems arising in the constituent collective farms, in elaborating problems concerning agricultural production in a district or in a group of districts (zones), generalizing the experience in field and animal husbandry, working out agro-technical and other problems. Unions of collective farms may be given the functions of supplying the constituent collective farms with machines, implements, fuel, fertilizers and other materials, of conducting financial transactions on behalf of the collective farms, credit transactions, etc. It is also proposed that the unions of collective farms organize inter-collective farm enterprises. (2) Unlike Academician Strumilin, these authors do not raise the question of pooling the group property of the collective farms into common-collective farm property.

It will be recalled that at the December 1959 Plenary Meeting of the Central Committee of the CPSU, which dealt with questions of the further development of Soviet agriculture, recommendations were made that inter-collective farm unions be formed in districts, regions and republics along with the reorganization of the work of the agricultural organs. The Presidium of the Central Committee of the CPSU was asked by the Plenary

Meeting to study and consider these questions. It should be noted, however, that the question of pooling the property of the collective farms was not raised.

It seems to us that two circumstances should be distinguished when this very important question is being considered. It is one thing to create definite regional or republic combined collective farm funds for strictly specified purposes, but an entirely different matter when it is a question of centralizing the management of all the affairs of the collective farms within a region, a republic and the Soviet Union as a whole. The need for definite regional, republic and, perhaps, also All-Union collective farm funds for specific purposes is already dictated by life itself, and their beginnings may already be found in practice. For example, there already are republic emergency grain seed stocks, food and forage stocks, regional construction organizations, etc.

The origin and growth of the special-purpose combined funds corresponds to the requirements of the collective farms. They reflect the rapid development of inter-collective farm economic contacts and they therefore represent a progressive development.

In its resolutions the Plenary Meeting of the Central Committee of the CPSU, meeting in December 1958, directed the Party organizations, Soviet authorities and agricultural organs to assist in every possible way in the development and extension of inter-collective farm production contacts, to encourage the initiative of the collective farms and to assist them in organizing joint construction of electric power plants, irrigation and land-reclamation units, roads, enterprises for storaging and processing agricultural products, inter-collective farm construction organizations and enterprises for the production of building materials. The Plenary Meeting of the Central Committee of the CPSU which met exactly a year later, in December 1959, noted the great headway made in the development of inter-collective farm contacts. The number of inter-collective farm enterprises is growing rapidly. In the Ukrainian SSR, for example, there are already more than 1,000 different inter-collective farm organizations and enterprises in which about 85% of the collective farms are participating.

As for the centralization of all economic activities of the collective farms within a region, a republic, or in the Soviet Union as a whole, with the corresponding centralization of all collective farm funds and the fusion of the existing property of separate collective farms into one common-collective farm property for the USSR as a whole, we believe that proposals of this kind do not follow from the tendencies which have already taken shape in the development of collective farm production.

Each collective farm is a separate agricultural enterprise. In agriculture, just as in industry, there are certain optimum sizes of enterprises dictated by the specific features of technology, organization and other conditions of agricultural production. The amalgamation of collective farms in the USSR was dictated primarily by the need for the fullest and most rational use of agricultural equipment and the improved organization of production. This amalgamation brought the size of the collective farms much closer to the optimum agricultural enterprise, although this problem has by no means been fully solved as yet. At any rate, neither midget collective farms nor super-giant collective farms can be considered agricultural enterprises of optimum size. The implements and other means of production, the organization of labor in agriculture as such do not require an intermediate stage on the way to the fusion of collective farm-cooperative property with state property into general public property, a stage corresponding to the fusion of the group property of separate collective farms into one common property of the collective farms in a given region, a given republic and even on the scale of the USSR as a whole. As we see it, the consistent implementation of the measures outlined by the Communist Party and the Soviet state for agricultural production should ensure the gradual advance of collective farm-cooperative property to the level of general public property, without the necessity of passing through the stage of common-collective farm property within the limits of a region, a republic, or the Soviet Union as a whole.

It should be borne in mind that in the basic sphere of collective farm activity (production of crops and animal husbandry) economic contacts are maintained not between different collective farms but between the collective farms on the one hand, and the state industrial, trading, transportation and other enterprises, on the other hand. Nor could it be otherwise, inasmuch as agriculture is a special branch of the national economy which is closely and inseparably connected with all the other branches of the national economy as a consumer of their products and supplier of raw materials for industry and of food for the population.

It is correct to speak of improving the provision of the collective farms with technical equipment produced in the state industrial enterprises, but it is hardly possible to prove that for this purpose it is necessary to create regional, republic and All-Union combinations of collective farms. Furthermore, why should agricultural production be sold

to the state not by separate collective farms, as is the practice today, but by regional, republic and All-Union combinations of collective farms?

We think that the transfer of these functions to collective farm amalgamations would result in excessive intermediate steps between the collective farms and state enterprises. The proposal to form such amalgamations does not take into account the tremendous part played by the Soviet state both in the over-all guidance of collective farm life and in the organization of economic contacts between the collective farms and state enterprises.

The Soviet state's leading role in the development of collective farming is combined with the Communist Party's firm policy of giving the collective farms the right to choose the most rational methods of effectively using the land at their disposal, their farm implements and other means of production in the interests of society as a whole and of the working people of the collective farms in particular. To this end the Soviet state renders great assistance to the collective farms.

The creation of common-collective farm property is not an essential stage for raising collective farm-cooperative property to the level of general public property. It will defer, rather than bring nearer, the fusion of collective farm-cooperative property with general public property, inasmuch as it will lead to the artificial isolation of the collective farm sector of production from the state sector, to the disruption of the direct and close contacts already existing between the collective farms and the state economy, contacts which should develop even more in the future. References to the existence of consumers' cooperative societies and Centrosoiuz are not convincing because even with the existence of Centrosoiuz the cooperative property of the village consumers' societies remains group property and not general public property. Unified property of the consumers' cooperatives on an All-Union scale is represented only by the enterprises which are within the direct jurisdiction of Centrosoiuz.

Similarly, the existence in the USSR (prior to the reorganization of the industrial cooperatives in 1956) of the Central Council of Industrial Cooperatives (Tsentropromsovet) did not represent the unification of the group property of the producers' cooperative societies into the common property of these societies on an All-Union scale. However, the absence of such a form of property did not hinder the important reorganization of the industrial cooperatives in 1956. This reorganization transferred the biggest specialized enterprises to the jurisdiction of the state authorities and the consumers' cooperative societies.

Socialism passes through specific stages and periods which represent different degreees of maturity of socialist production relations. The period of the comprehensive construction of communism, which has already begun, is evidently the last period in the development of socialism, the period in which the material and intellectual foundation is built for the systematic transition to communism and the period in which this transition itself takes place.

The gradual character of communist construction does not mean that the process of development towards communism will not be accompanied by any major leaps representing important qualitative changes in various aspects of society's life. As the result of the construction of the material and technical base of communism and the improvement of the production relations of socialism, their development into communist production relations, the time will apparently come when it will be possible and necessary to speak of the victory of communism in some basic, fundamental sense. There is no doubt that the time will also come when communism will triumph completely and finally.

The victory of communism presupposes the existence of the material and technical base of communism which ensures an abundance of products, the predominance of a single, communist form of property in the means of production, the absence of class divisions in society, the disappearance of essential distinctions between town and country and between intellectual and physical labor, the treatment of labor as a prime necessity and the application of the communist principle: from each according to his abilities, to each according to his needs.

The question of the sequence in which the decisive processes of society's transition from socialism to communism will occur is already acquiring great importance. These processes include the fusion of the two forms of socialist property into a single form of general public property and the elimination of all other manifestations of essential distinctions between town and country; liquidation of the essential distinctions between intellectual and physical labor; the transition to distribution according to needs.

Will the first of the above-mentioned processes be completed before the second one, and will the third of these processes — transition to distribution according to needs — conclude the entire process of creating a communist society?

In the works of the founders of scientific communism the socialist society appears as a society without any classes and with one form of socialist property. The Directives on the Second Five-Year Plan of the National Economy of the USSR

(1933-1937) adopted by the 17th Party Conference speak of the task of building a classless socialist society. Consequently, it was held that the differences between the two forms of property and every division into classes would already be eliminated in the socialist society, before the advent of communism.

This was in 1932, before the victory of socialism in our country, in the period of transition of the USSR from capitalism to socialism. Life has shown that socialism signifies the elimination of the exploiting classes, the eradication of antagonistic contrasts between town and country. But essential distinctions between town and country, and the class distinction between the workers and the collective farm peasantry stemming from the existence of two forms of socialist property in the means of production still remain.

Will the fusion of the two forms of socialist property into a single form of general public property occur before the essential distinctions between intellectual and physical labor are eliminated and distribution according to labor is succeeded by distribution according to needs, or will these three processes be concluded more or less simultaneously? Thus far we find no categorical answer to this question in our actual practice. It seems probable to us that the complete fusion of the two forms of property into a single form of property belonging to the whole people will not precede the complete elimination of the essential distinctions between intellectual and physical labor and the complete replacement of the socialist principle of distribution of products by the communist principle of distribution.

This assumption is supported, in our opinion, by the indisputable fact that all these three processes — 1) development of the two forms of property and their fusion into one form of general public property, 2) elimination of the essential distinctions between intellectual and physical labor, and 3) the transition to distribution according to needs — are most closely connected with the same decisive factor: the building of the material and technical base of communism and the growth of the productivity of social labor. All these processes depend on the development of the productive forces of society and each proceeds gradually.

If each of these three processes depends to the same degree on the construction of the material and technical base of communism and they all take place gradually, then what grounds are there for assuming that the fusion of the two forms of property will be completed before the two other processes? There seem to be no grounds for this.

This question, like some of the others raised in this article, is debatable, of course. But it is time to raise these questions without waiting for them to become entirely clear and indisputable. Economists should not merely record current events but should try to anticipate them. Today, in the period of the comprehensive construction of communism, it is especially important to disclose the tendencies operating in the economic development of society.

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Footnotes

(1) S. G. Strumilin, Na putiakh postroeniia kommunisma, Sotsegiz, 1959, pp. 58-66.

(2) Kommunist, 1958, No. 4, pp. 42-44.

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Kommunist, No. 9, 1960

A. KOROVUSHKIN:

The Use of Credit in Communist Construction

The Soviet people are engaged in peaceful creative labor. The Communist Party and the Soviet Government are directing the efforts of the people towards developing socialist production in every possible way, towards creating the material and technical base of communism, and towards attaining the highest standard of living in the world. These historic decisions of the recent 5th Session of the Supreme Soviet of the USSR are permeated with real concern for the working people. The Plenary

Meeting of the Central Committee of the CPSU to be held in July will consider the fundamental questions of technical progress and the improvement of socialist industry, the foundation of foundations of our economy, and the well-being of the people.

The effective use of the economic levers of the national economy acquires ever greater significance in solving the tremendous tasks of communist construction and in accelerating technical progress. The role of the credit and financial system has become especially important. We have seen the full confirmation of Karl Marx's forecast that "the credit system will serve as a powerful lever during the transition from the capitalist method of production to the method of production of associated labor — however, only as an element in connection with other great organic revolutions in the very mode of production."* Using this thesis of the founders of Marxism, Lenin showed the necessity of applying the credit system in building a socialist society and outlined the concrete ways and means of solving this task. The Soviet state, headed by Lenin, nationalized private banks, established a single State Bank as a public apparatus of accounting and control in which the entire monetary and trade turnover of the country was concentrated. Since then money and credit in the USSR have been firmly placed at the service of socialism.

In our economy credit expresses socialist production relations. It is an integral part of socialist expanded reproduction. By means of it the banks mobilize (on the basis of repayment) all the temporarily free money resources which are formed during the circulation of assets at various stages of the reproduction process. These include: the money balances in the business accounts and current accounts of state, cooperative, and other public enterprises, institutions and organizations; the current accounts of collective farms; the funds of the state budget which are formed as a result of the surplus of receipts over expenditures; the free cash in savings banks; the social insurance funds, etc. These sums, which amount to many millions, are concentrated in the bank, which grants them to socialist enterprises and organizations in order to satisfy their temporary needs for funds arising during the process of production and circulation.

In the socialist economy, credit is directly connected with the process of production and commodity circulation. Credit is granted according to plan and for definite purposes. It must be ensured by material values and returned on the set date.

Adherence to these principles enables the State Bank of the USSR to actively influence, by means of financial control, the entire industrial and financial activity of socialist enterprises and organizations.

The full development and strengthening of the principle of democratic centralism in economic management, the extension of the rights of the Union Republics and local administration bodies, the reorganization of management in industry and construction, the measures for the reorganization of the Machine and Tractor Stations and the further development of the collective farm system — all of these enhance the role of the centralized credit and monetary system in the socialist economy.

Today the State Bank is an extensively operating centralized apparatus with a network of institutions in each republic, territory, region and district. It has 15 offices in the Union Republics, 151 offices in the Autonomous Republics, territories and regions, and 4,175 branches in the districts and cities of the country. This public organ of accounting and control is constantly being improved. Recently a new, important step was taken to transform the State Bank of the USSR into a single credit center for the socialist national economy. By a decree of the Presidium of the Supreme Soviet of the USSR dated April 7, 1959, the Agricultural Bank, the Central Municipal Bank, and the minicipal banks were abolished, and their functions were turned over to the State Bank and the Construction Bank (which was created on the basis of the reorganization of the Industrial Bank of the USSR).

In this connection, the State Bank has been given the additional responsibility of financing the capital investments of state agricultural enterprises and organizations, and of drawing money into the indivisible funds of collective farms and the funds for the long-term crediting of producers' cooperative organizations. Its tasks also include extending long-term credit to collective farms, producers' and consumers' cooperative organizations, providing short-term credit and settling the accounts of the municipal and housing economy, as well as granting credit for individual housing construction in the countryside and the financing of capital repairs of municipal enterprises and the housing fund.

The basic tasks of the State Bank during the current seven-year period are: to contribute in every possible way to the further expansion of industry, commodity circulation and socialist accumulation; to mobilize money resources to the maximum degree and to use them in the most rational way in the interests of communist construction; to develop and strengthen credit relations with all branches of the national economy; to further strengthen

* Karl Marx, Capital, Vol. III, 1950, p. 621, Russian edition.

money circulation in the country; to improve the forms and methods of bank operations, raise their economic level, eradicate existing defects in the work of banking institutions. The State Bank is faced with a big and important task in fulfilling the government decision on exchanging the money now in circulation for new money. The entire activity of the State Bank today should be subordinated to the main goal, that of ensuring the fulfillment and overfulfillment of the tasks set by the Seven-Year Plan for the development of the national economy of the USSR, with the minimum expenditure of the people's resources.

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The loans granted by the State Bank of the USSR participate in the circulation of funds of all branches of the national economy and constitute about 50% of the working capital of enterprises and organizations. The total sum of the loans extended by the State Bank in 1959 exceeded 3.4 trillion rubles, and the remainder of the credit investments in the national economy at the beginning of the current year amounted to almost 418 billion rubles.

The growth of the national economy in the current seven-year period will call for the further development and strengthening of the credit relations of the bank with the national economy. Preliminary calculations show that credit in the sphere of industrial and agricultural production will increase by 67 to 70% in the period from 1959 to 1965, and the credit in the sphere of circulation by about 40 to 45%. The bank's credit ties with heavy industry will be strengthened by more extensive credit granted to its enterprises against the sale of their output. This will enable the bank to control the circulation of funds from the initial to the final stage — the sale of the finished product. The system of granting credit to heavy industry enterprises must be further improved.

Credit plays an important role in developing enterprises of light and local industry, enterprises which process agricultural raw material, and also in developing the system of industrial cooperatives. Credit is a powerful means for stimulating the expansion of output of consumer goods, improving the assortment and quality of the goods produced, and for the uninterrupted movement of these goods from industry to the places of consumption.

The State Bank grants credit to enterprises for the introduction of new machinery, the modernization of equipment, and the mechanization and improvement of the technology of production. This is done in cases when such expenditures are not provided for by the plans for capital investments and the cost of construction and assembly work necessary to equip the premises does not exceed 25% of the total sum of the credit requested. We are referring here to measures connected with the realization of the innovations proposed by the workers, engineers and technicians in the course of fulfilling the plan. With the aid of bank credit they are carried out with the main resources of the enterprises themselves. The expenditures should be recouped in a brief period, about two years, and in some branches of industry in three years.

In 1959 the State Bank granted about 4 billion rubles for these purposes. In the period from 1954 to 1959 such credit amounted to almost 16 billion rubles. This proved to be very effective. For instance, according to the figures of economic organizations, for each ruble of credit granted for the introduction of new equipment and the mechanization of production in 1959 additional output of 1 ruble 18 kopeks was produced, and the resulting economy made it possible to cover the loans completely. However, in providing funds the State Bank institutions do not always check up on the economic effectiveness of the planned measures and whether they are backed by material resources and labor power. Frequently credits are granted for new work when work which has previously been initiated has not yet been completed, etc. We must see to it that funds are not dissipated and that bank credit is used effectively. This is all the more important since in the current seven-year period the amount of credit for the technical re-equipment and reconstruction of enterprises will increase considerably.

In the present stage of communist construction the credit relations between the state and the collective farms are acquiring ever greater significance. Substantial qualitative changes have taken place in the very process of money circulation in collective farm production. Compulsory deliveries and payment in kind for the work of the Machine and Tractor Stations have been abolished, a single form of state purchases has been introduced, the sale of the necessary machines to collective farms has been organized, and a number of other measures have been carried out. The necessary conditions have been created in agriculture for the introduction of cost accounting, a lowering of production costs, and a rise in the profitability of production. The collective farms have been enabled to cover all their expenditures in money form and to provide accumulations for expanded socialist reproduction. As we know, before the reorganization of the Machine and Tractor Stations production expenditures were, to a considerable extent, borne by the Machine and Tractor Stations, which were later paid for their work in kind by the collective farms. Today all expenditures are met from the collective farm's own

working capital and the short-term credit granted by the State Bank.

The short-term credit investments in the social production of the collective farms and the monetary advances received by the artels through the procurement organizations increased more than 50% in 1959 as compared with 1958 and amounted to more than 30 billion rubles. In the future, as agricultural production continues to grow and its marketable surpluses increase, credit will play a greater role in strengthening the material and technical base of the collective farms, in the distribution and redistribution of the net income created in agriculture.

In using money and credit for the further development of the collective farm system the institutions of the State Bank must actively help the collective farms in the following ways: to correctly organize their finances; to increase the share of their own working capital which is needed to cover production expenses; to organize the timely settling of accounts with the budget, the bank, procurement organizations and suppliers; to form and correctly use the money in the indivisible funds and also to keep their accounts in order.

In the light of the decisions of the December (1959) Plenary Meeting of the Central Committee of the CPSU, the tasks facing the State Bank in the field of credit and banking relations with organizations selling industrial goods in the countryside assume a new aspect. The Repair and Technical Stations are freed of their functions as suppliers, unified trading organizations are organized for these purposes, and greater control is established over the correct organization of orders and the fulfillment of agreements for the delivery of goods, with the actual needs for these goods being taken into consideration. This will make it possible to eliminate the serious defects in supplying agriculture, to accelerate commodity circulation, and to lower distribution costs.

Large amounts of credit are granted by the State Bank to the procurement organizations for the purchase of agricultural produce. Furthermore, this credit is not limited. This requires the State Bank institutions to exercise systematic control over the actual supplying of credit, to check up on the conditions in which the credit-financed goods and material values are kept, and to see to the correct organization of the accounts and the manner of conducting financial operations by the procurement organizations.

State Bank institutions, which in the course of their credit and banking operations maintain constant ties with all enterprises, organizations, state farms and collective farms, have great opportunities for exercising effective control to ensure the thrifty, economical and efficient operation of the economy and to resolutely combat wastefulness.

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As a whole, our industry is working well. It is fulfilling and overfulfilling the plans for production, for reducing production costs and for increasing accumulations. But there are still enterprises which are not coping with their assigned tasks. The economic and credit institutions must devote more attention to them. By quickly and operationally taking the necessary measures based on an analysis of the financial and economic activity of the enterprises, trusts, administrations, economic councils, ministries and departments, it is fully possible to ensure a rapid improvement in the economic and financial activity of the lagging enterprises and to restore their normal credit ties with the bank.

The State Bank has been set the task of helping, in every way possible, to strengthen the cost accounting and regime of economy at every enterprise and in every economic organization. On the basis of the decision of the Council of Ministers of the USSR and the Central Committee of the CPSU, dated August 21, 1954, "On the Role and Tasks of the State Bank of the USSR," the credit organs take a different approach to enterprises which work well and to those which work poorly. A special, stricter regime of credit and accounting is applied to the latter. According to the existing regulations, economic organizations which have been transferred to this regime must take immediate measures to eliminate the causes of losses or the non-fulfillment of the plans for accumulations and to eradicate the defects in their work. However, in some cases the individual production collectives direct their effforts not to overcoming the mistakes and blunders in their work, but to creating favorable financial conditions (the receipt of materials without paying for them on time, transfers of working capital outside of the plan, etc.). This does not help to strengthen cost accounting. In such cases, in order to resolutely put an end to those practices which conflict with cost accounting, the State Bank requires that the working capital be replenished and that simultaneously measures be taken to fundamentally improve the work of the poorly functioning economic bodies.

The decision of the Council of Ministers of the USSR on changing the scale of prices beginning January 1, 1961, and replacing the money now in circulation with new money, will have a tremendous positive influence on the further strengthening of cost accounting. This is an inevitable result of the development of the socialist economy and the

colossal increase in the volume of production and commodity circulation. The gross production, national income and money circulation in our country amount to many billions and trillions of rubles. It is therefore difficult to measure them with the existing scale of prices. The urgent need to consolidate this scale has thus arisen. The fulfillment of this measure, provided that the interests of the population and the state are strictly observed, will raise still more the importance of money in the solution of national economic tasks as well as its role in heightening the material interest of the working people in the results of their work.

At the same time there are a number of other important problems whose solution will help to further strengthen cost accounting in the national economy. They include: closer ties between industrial and financial planning; an improvement in the organization of material and technical supply; economically substantiated planning of the level of profitability and the implementation of measures to eliminate planned losses in certain branches and enterprises. The latter is connected with the proper regulation of price fixing, further reductions in the level of production costs and a rise in the material incentives of the enterprises and collectives of working people to fulfill the quantitative and qualitative indices of the plan.

One of the important conditions for strengthening cost accounting is the improvement of the contractual relations among the economic organizations. A contract for the purchase and delivery of products, which specifies the quantity, quality, price and delivery dates, plays an organizing role in the process of production and sale of products. It serves as one of the most important elements in the system of economic relations and helps to increase the material responsibility of the contracting parties for the timely fulfillment of their obligations as regards quantity, quality, and assortment of goods to be delivered, and also as regards the payment of bills. Of great significance is the emphasis on the development of direct contractual relations between suppliers and customers as well as direct and transit shipments of goods and material values. This makes it possible to reduce the number of links involved in the deliveries and settling of accounts, to accelerate the movement of goods from the producer to the consumer, to lessen the need for working capital and bank credit, and to reduce the inputs of social labor in the circulation of material values.

Measures are being worked out to improve and accelerate the handling of documents and to further improve the system of settling accounts. The eradication of unnecessary, excess links will increase the possibility of using such an economically advantageous form as planned payments. The essence of this system is that the buyer settles accounts with the supplier not for every individual shipment but periodically, for a number of shipments, on dates agreed upon beforehand. This accelerates the movement of money, reduces the need for credit, lessens the flow of financial and other documents, and lowers the cost of maintaining the administrative and managerial staff.

The question of consolidating payments when settling accounts is acquiring great importance. Payments which are small in amount account for a considerable share of calculating operations and naturally call for considerable expenditures of labor and materials. Statistics show that payments of up to 1,000 rubles do not exceed 0.7% of the country's total payments, but they constitute 42% of the total number of financial documents involved. By consolidating such payments it will be possible to greatly reduce the number of operations connected with the settling of accounts and, correspondingly, to reduce the number of people engaged in this work in the national economy.

It is necessary to systematically improve the system of settling accounts in the national economy, to ensure an improvement in accounting operations, and on a wide scale to introduce the mechanization of accounting and bookkeeping within the system of the State Bank and the economic organs. All of this will make it possible to economize on the expenditure of state funds for the maintenance of personnel engaged in monetary operations, accounting, credit and other financial operations. The importance of this question is indicated by the fact that over two million people are engaged in bookkeeping work in the national economy.

The further strengthening of discipline in payments and of the bank's control over the process of settling accounts also require constant attention. Discipline in payments in the national economy has improved somewhat of late, but certain economic organs still do not settle on time with the budget, the bank and their suppliers. This situation cannot be considered normal.

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The tasks set by the 21st Congress of the CPSU for the development of productive forces and production relations in the socialist society call for the further strengthening of monetary circulation. In order to achieve this it is first necessary to ensure correct proportions between the incomes and expenditures of the population and to satisfy the growing demand for goods and services. In the seven years preceding the current Seven-Year Plan for the development of the national economy of the

USSR, retail trade increased by 78%, reaching the figure of 677.2 billion rubles in 1958. During this same period the money turnover going through the State Bank increased by 72%. In 1959, the first year of the current Seven-Year Plan, there was a further development of retail trade.

In this connection it should be noted that the purchasing power of the population increased not only as a result of an absolute rise in wages, in the size of pensions and in the money incomes of the collective farmers, but also as a result of a reduction in taxes (agricultural, income and bachelors' taxes), the ending of the state loans to which the population subscribed, the abolition of tuition fees in the higher educational institutions and secondary schools, and other measures undertaken by the Party and the government to improve the material and cultural standard of living of the people. The additional purchasing power of the population was accompanied by a corresponding increase in the sale of goods to the population and an expansion of paid services.

Money circulation in the countryside is also growing rapidly. Many collective farms have already introduced the system of monetary payment for work. Such farms have created, with their own incomes, funds for advances to collective farmers so that prompt and uninterrupted payments are made to them throughout the year. As collective farm production develops, payments in kind by collective farms to their farm members are being replaced more and more by payments in money and the sphere in which money functions in the village is becoming ever greater. However, some trading organizations and State Bank institutions are not adequately studying the changes taking place in money circulation in the countryside. Little is being done to improve the work of the consumers' cooperative societies. The number of cultural and service enterprises is far too small. The increase in commodity circulation in a number of districts still lags behind the increase in the incomes of the rural population.

The further development of the national economy is accompanied by a constant rise in the money income of the population and, at the same time, creates the prerequisites for strengthening money circulation. The Law on the Abolition of Taxation of the Population passed by the Fifth Session of the Supreme Soviet of the USSR also contributes to this. With the abolition of taxes the income of the State budget will come entirely from the accumulations of socialist enterprises. This means that greater importance must be attached to such questions as the fulfillment and overfulfillment of the plans for the production and sale of goods, a considerable improvement in their quality and assortment, a lowering of production costs and an increase in accumulations, the comprehensive development of trade and the network of cultural and service establishments.

The Seven-Year Plan for the development of the national economy of the USSR ensures (for the country as a whole) a conformity between the rise in the money income of the population and the growth in retail trade and paid services offered to citizens of the USSR. It is important that such conformity also be ensured in the republics, territories and regions. All necessary conditions for this exist today.

The planning of money circulation as an organic part of the general state planning of the national economy is conducted on the basis of the balances of the money incomes and expenditures of the population and the cash plans of the State Bank. At present a number of important indices which influence the volume of money incomes and expenditures of the population are established by the local authorities. For instance, the Union Republics enjoy great rights in the planning of production figures and wage funds, and in the determination of the volume of agricultural procurements. They determine the retail trade turnover for the trading systems and also the volume and nature of the paid services rendered the population, etc. All of this increases the role and responsibility of the Union Republics for the state of money circulation.

In the past the balances of the money incomes and expenditures of the population in the republics, territories and regions were not used sufficiently in actual practice to ensure the necessary proportions between money incomes and expenditures. The preparation of such balances was not compulsory. This led to a situation in which, in spite of the fact that for the country as a whole the necessary conformity existed between the money incomes and expenditures of the population, in some economic areas this conformity was lacking inasmuch as the planning of the volume of trade turnover, paid services, and a number of other indices, was done without sufficient attention being paid to the growing income of the citizens. This compelled the population of some districts to spend part of their incomes in other territories and regions of the country.

It is now obligatory to draw up planned balances of the money incomes and expenditures of the population on a territorial basis. This will make it possible to improve the coordination of the volume of trade and services with the money income of the population. It will create the conditions for the improved organization and regulation of money

circulation in the Union Republics and, what is most important, will contribute to the better servicing of the working people by trading, cultural, and public-service establishments.

The rise in the purchasing power of the Soviet ruble depends to a considerable degree on achieving a more rapid growth of the productivity of social labor than of wages. In this connection the correct use of the wage fund, which constitutes over 80% of all the expenditures in the cash plan of the State Bank, is of great importance. By decision of the Party and the government wages are now being adjusted. The appropriate measures have already been taken in the coal industry, in the iron and steel and non-ferrous metals industry, in the chemical industry and a number of other branches. This work must be fully completed in the next few years. As a result of these measures the minimum wage in all branches of the national economy will be considerably increased.

All of this makes it necessary to find additional resources and to use the wage funds correctly and economically. Overexpenditures of these funds are a serious violation of state discipline. Enterprises are expected to repay the sums spent in excess of the plan within a few months and to eradicate the reasons making for such a situation. The director and other managerial personnel of industrial enterprises, building projects and economic organizations responsible for this excess expenditure of the wage fund are deprived of bonuses until the excess expenditures have been repaid.

In exceptional cases the State Bank provides enterprises with funds for the payment of wages in excess of the amount due them on the basis of plan fulfillment. This excess must not exceed 5% of the monthly wage fund. At the same time it is stipulated that the enterprise must fully repay all previous overexpenditures. In all other cases the permission of higher organizations is required — ministries, economic councils, departments and executive committees of the Soviets of Working Peoples' Deputies — within the limits of the rights they enjoy. The State Bank has been given the right to exercise greater control over the use of wage funds by institutions and organizations financed out of budget funds.

It must be said that for the national economy as a whole the wage fund is used economically and the amount of overexpenditures is being reduced from year to year. However, in a number of branches of industry (the timber, coal, and building materials industries), there are still many enterprises which exceed the wage fund without any grounds for doing so. Enterprises and building organizations of the Rostov, Krasnodar, Karaganda, Kustanai and Kirgiz economic councils were guilty of serious violations of financial discipline and mismanagement in 1959. Every enterprise, institution and organization must spend the wage fund established for it in a rational manner and must fulfill its assignments in reducing production costs and increasing accumulations.

Soviet industry and transport have not only been fulfilling their production and transportation plans but have been overfulfilling them. This naturally requires additional wage expenditures. By exceeding the plans for the sale of agricultural produce and raw materials to the state, the collective farms and farmers also receive additional money incomes. In order not to permit any gaps to develop between the incomes of the working people and available goods to cover these incomes, it is extremely important in fulfilling the national economic plans to find the necessary commodity resources to cover the additional incomes received by the population. The government, planning and economic organs have been directed to promptly take the necessary measures in this connection.

The successful solution of the tasks in the field of money circulation requires a considerable improvement in the economic work of the State Bank, increased monetary control over the financial and economic activity of the enterprises and organizations, closer coordination between the granting of credit in the national economy and the tasks of planning and regulating monetary circulation.

As the money income of the population increases, there is a constant rise in the demand for improved assortments and quality of goods, as well as for new models of goods, new styles, types and makes. However, the trading organizations are not yet sufficiently studying the demands of the population and are not exerting the necessary pressure on industry to improve the assortment and quality of the goods. Many enterprises, while producing new types of goods and articles of better quality, continue to produce articles which have become old-fashioned and models for which there is only a slight demand on the part of buyers and which therefore become dust collectors in the stores.

It must be pointed out that as a whole the State Bank does not as yet exercise sufficient financial control over the production and circulation of goods and material values. Until recently credit institutions applied credit measures primarily to bring pressure to bear on an industrial enterprise when accumulations of the finished product and other resources exceeded the allowable norms and financial difficulties arose there. The task is to forestall the accumulation of surplus and unnecessary supplies of goods and material values, to prevent the

production of unnecessary articles or the overfulfillment of the plan for goods which have a limited market. The economic organs have now been made more responsible for the above-plan output of articles which have a limited market and for the accumulation of goods and material values above the established norms. In order to exercise preliminary control over the delivery of goods needed by the population, the State Bank, with the permission of the Council of Ministers of the USSR, is ceasing to extend credit to trading organizations for the payment for goods which are not in demand or for which the demand is limited (when the trading organizations systematically accumulate surplus supplies of these goods).

It is very important to make full use of socialist credit to further expand retail trade, to develop economic ties between town and country, between industry and agriculture, and between enterprises and higher economic organizations. Trading organizations are expected to regularly fulfill their retail trade plans, to seek opportunities to exceed them, to ensure the correct distribution of goods in accordance with the demand and money income of the population, and not to permit overstocking.

The considerable increase in the provision of credit which will take place in the seven-year period in all branches of the national economy and the further development of credit relations will raise the responsibility of the local government and economic organs, as well as that of the State Bank institutions, for the most rational use of money resources. It cannot be said that things are satisfactory in this respect. Bank credit frequently goes to cover excess supplies of goods and material values, to liquidate financial gaps resulting from the poor work of enterprises. Although the bank brings pressure to bear upon such negligent managers, the higher economic organs must also increase their demands on the heads of enterprises. It must not be forgotten that the irregular use of bank credit also has a negative effect upon money circulation.

The localities now have the conditions necessary for closer coordination between the provision of credit and money circulation, for exerting greater economic pressure upon those economic processes which are connected with the circulation of available money. For example, the bank can do a great deal to increase its cash receipts when extending credit to enterprises which produce consumer goods, to trading organizations, and also to enterprises which provide paid services to the population. The extension of credit to these economic organs will help to increase the production of goods of the necessary quality and assortment for the population, to bring them quickly to consumers in accordance with the buyers' demands in the districts, and will help to increase retail sales.

The exercise of the bank's financial control in extending credit for the national economy must contribute to the all-round development of production and trade, to a regime of economy, a reduction in production costs, and a growth in socialist accumulations. It must also prevent by suitable means any possible violations of individual items of the plan in the sphere of production and circulation, in the balance of money incomes and expenditures of the population, and in money circulation.

In connection with the forthcoming change in the scale of prices beginning January 1, 1961, the money now in circulation will be replaced by new money. It is planned to carry out this change within the period from January to March, 1961. During this period both the old and the new money will be in circulation simultaneously. The withdrawal of the old money from circulation will take place both through the direct exchange for new money in specially organized exchange centers of the State Bank, and also through the usual channels: trade, theaters, communal enterprises, saving banks, and by accepting the old money from the population for all payments. The exchange will be conducted on the basis of 10 rubles of the old money for one ruble of the new money. It is absolutely necessary to carry out this important measure with exactness and in an organized way.

The correct use of credit, money and all other economic levers in practical work for the purpose of developing socialist society and further raising the level of economic work in all Soviet credit institutions will help in the successful fulfillment of the tremendous tasks of the comprehensive building of communism in our country, tasks set by the historic decisions of the 21st Congress of the CPSU.

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D. VALENTEI:

On the Construction of Cities During the Transition to Communism

The practical solution of the problem of population as social and economic distinctions between town and village are obliterated is closely tied up with the historically conditioned balance of a country's urban and rural population.

Soviet society inherited from tsarist Russia a highly irrational structure of industry which made for a corresponding unevenness in the distribution of productive forces and population in its territory.

Socialism creates completely new conditions and laws governing population in comparison with capitalism. We may find the fundamental propositions of an analysis of the basic features of distribution of population under socialism in the works of the classics of Marxism-Leninism. "Only a society capable of harmonizing its productive forces under a single general plan," wrote Engels, "can allow industry to be located over the whole country in a manner that is most convenient for its development and the preservation, as well as for the development, of other elements of production. Thus, the elimination of contradictions between town and village is not merely possible, it has become an imperative for industrial production as well as for agricultural production. Moreover, it is necessary in the interests of social hygiene." (1) V. I. Lenin emphasized that "capitalism severs the ties between agriculture and industry for good, but at the same time, by its higher development, it prepares new elements of these ties, combining industry and agriculture on the basis of the purposeful application of science and the combination of collective labor, a new resettlement of humanity (with a liquidation both of rural backwardness and isolation from the world, of the wilderness, as well as of the unnatural accumulation of gigantic masses in the big cities)." (2)

Consequently, the classics of Marxism-Leninism regard the new socialist character of population as being directly dependent on the fusion of industry and agriculture on the basis of large-scale production. This process rests on the objective necessity for the preferential development of production of the means of production, which makes possible the transformation of industrial and agricultural production on the basis of the highest level of technology.

The implementation of socialist industrialization and Lenin's cooperative plan resulted in a radical change in the position of the countryside in social, economic, technical and cultural aspects. Only temporary essential distinctions remain between town and country.

Socialist industrialization has led to a growth of the urban population. In 1913 it was 28.1 million, that is, 18% of the total. In 1959 it was 99.8 million, that is, 48% of the total. This growth was particularly marked in the old industrial towns and workers' settlements which emerged with the development of industry. From 1926 to 1959 the number of towns and workers' settlements increased almost 2.5 times. In that period the number of cities with over 100,000 population rose from 31 to 149, and of cities with a population of over 500,000 rose from 3 to 25.

With the victory of socialism the contradiction between town and village was liquidated. To build communist society it is necessary to eliminate the essential distinctions between town and village which still remain in the first phase of communism. In this connection there arises with increasing urgency the question of our future cities, their features and the nature of city planning during the transition to communism.

The successful solution of this problem requires further scientific elaboration of the prospects of city planning during the construction of communist society. Basing ourselves on the present level of development of Soviet society's productive forces, we must proceed from the task set before us by the Party in working out these questions, namely, to ensure the world's highest living standards.

Along with the expansion of housing construction in reserve urban territories in the big cities (such as the Novye Cheremushki in Moscow) it is planned to carry out extensive resettlement of a part of the natural increase of population to other areas. In particular, important measures are being taken to

transfer some industrial plants beyond the boundaries of big industrial cities (for example, some Moscow enterprises to Moscow Region). This will lead to a relocation of manpower as well. But this in itself will not eliminate the hypertrophy of some of our large cities. The transferred plants will be able to use local manpower, a part of the workers who now live in the suburban areas and work in Moscow, Leningrad, Kiev, Kharkov, etc. We cannot expect the net increment of population in the large cities as a whole to settle in the satellite towns.

The planned, proportional and harmonious development of the national economy as a whole and of its several areas not only makes for a more uniform settlement of the population on the country's territory in general, but also influences the nature and size of the settlements. (3) The reconstruction of existing towns and the construction of new ones, large, medium and small, their location and size will in each individual case be dependent primarily on economic factors, the availability and position of minerals, power resources, etc., with an eye to creating for the population all the necessary conditions for work, recreation, rest and cultural and every-day services and amenities.

The practice of city planning requires the determination of optimum sizes of various towns, the economic effect of their distribution, the rational planning and combination of industries, housing areas, cultural and public service facilities (municipal enterprises, academic institutions, public health institutions, cultural and educational institutions, commercial and catering enterprises, sports facilities, children's establishments, etc.) within the residential area, (4) as well as the delineation of the borders and economy of the suburban area.

Our urban population is growing at a rapid rate. This is due above all to the development of industry and transport, the main town-forming factors. When new industrial enterprises, transport junctions, research institutions, etc., are built, the urban population grows both from the natural as well as the mechanical increases. The source of the latter is the rural population or the population of other towns where industry is developing at a slower rate or not at all.

Planning the distribution of the productive forces of the socialist society presupposes planning the location of settlements, their size and nature. In planning the location of population and industry, society proceeds both from natural conditions and from social and economic laws, as well as from the principles and factors involved in the distribution of settlements and their nature.

Modern city planning is laying the foundation for cities which will exist in the communist society. That is why, even now, in determining the character and size of populated localities, their population, full consideration must be given to the prospects of the economic development of these cities as well as the creation of all the necessary amenities for human life and hygiene.

According to the Rules and Standards of City Planning and Building, layout projects should provide for an integrated solution of architectural, building, economic, sanitation, hygiene, and engineering problems for a period of 20 to 25 years. I think this period is clearly too short. The natural and mechanical increase of population turns a small town into a medium-sized one in 20 to 25 years, etc. If the buildings are well made they will be well preserved. If they are built in accordance with rules for small towns, let us say, they will become anachronisms in a correspondingly short period. The transformation of the small town into the medium, the medium into the big, and the big into the very big one, unless provided for in advance in the process of planning and building, will require the reconstruction of towns, remodelling of arteries, demolition of buildings which are far from outdated, etc. It is a fact, for instance, that the demolition of a two-story house costs roughly 30% as much as the building of a four or five-story house on the site.

There has been a marked change in the nature of cities and settlements in Soviet times. In the period of reconstruction the Party and Government already initiated the remodelling and building of towns. The June (1931) Plenum of the Party's Central Committee pointed up the inadvisability of concentrating sizable masses of population in small areas and the construction of a large number of enterprises in big urban centers.

But in spite of important successes in city planning and the construction of settlements in rural areas many problems connected with settlement, and in particular, with the regulation of urban growth, have not yet been solved. Economists are not paying enough attention to such important problems as the determination of the optimum size of towns, the nature of the settlements under construction, etc. The correct solution of these questions is of great social importance in the process of our society's transition to communism. It will lead to a rise in the living standards of the Soviet people, promote a rise in cultural standards in town and country, create conditions for the successful solution of such important social problems of communist construction as the overcoming of essential distinctions between mental and physical labor, and between town and village.

There is another important aspect of these

population problems, namely, the economic. Their correct solution requires a more effective use of the enormous capital investments set aside by society for urban and housing construction. A timely, well-based social and economic substantiation of the plans for the distribution and character of new towns and other settlements will make it possible, with the further growth of industrial production, to avoid losses which today stem from insufficient attention to this matter on the part of planning bodies.

When Engels spoke of the "destruction of big towns" (with ironical reference to Bismarck's proposition), he proceeded from the fact that the elimination of the contradictions between town and country in a socialist society is possible only by a merger of town and country on the basis of a transformation of agricultural labor into a form of industrial labor. Engels also had in mind the goal of a socialist society, namely, the creation of the most favorable conditions for work and life. Needless to say, Marxism-Leninism, far from rejecting, emphasizes the enormous cultural, political and economic role of large cities. Large cities will continue to play a big role in the life of society. I think they will remain centers of cultural growth and large-scale industry. That is why they will continue to be the leading factors in the country's economic and cultural life. At the same time it is quite obvious that the excessive size of some of our cities has its negative aspects. With the excessive growth of big cities factors arise which hinder the process of improvement of the population's living standards, and there is a constant rise in the per capita cost of urban construction. We must find effective means of regulating their further growth as soon as possible. City planners note that there is a sharp rise in the cost of building and maintaining cities when their size exceeds a certain limit. (5) There is a definite economic limit to the size of cities.

The decisions of the 21st Congress of the CPSU reflect the great concern of the Party and Government for the harmonious development of Soviet citizens.

Comrade N. S. Khrushchev, who is constantly giving great attention to urban and rural construction, in his report at the 21st Congress emphasized that planning organizations must work out economical model projects of dwelling houses intended for extensive use, as well as general plans for urban development and layout projects for rural settlements, bearing in mind that living conditions in town and country should correspond to the multifaceted requirements of Soviet citizens. Consequently, the approach to the problem rests on the need to create the best material and cultural conditions for the life of the Soviet people.

What is the size of city that involves the smallest per capita material expenditures for the construction and exploitation of the whole complex of the urban economy?

Special studies and the experience of city planning indicate that a city with a population of one million is less economical than one with a population of 200,000 to 250,000. At the same time, a city with a population of 100,000 is apparently more economical than one with 20,000. However, the optimum size of settlement can be determined in actual practice by taking account of many factors determining the expediency of urban construction, and may vary from 20,000 to 250,000 population.

The extension of city limits beyond certain boundaries calls for great expenditures in organizing urban transport, the construction of more complex and costly municipal services, etc. But the cost of urban transport and engineering structures is only part of the problem. The working people spend a lot of time and energy in travelling to work, and this has an effect on their productivity. The problem of supplying the population with vegetables, milk and other foods, as well as fuel and building materials, becomes more complex, and there is a sharp increase in their transportation costs. Naturally, all these problems are solved with greater ease and at less expense in the small and medium cities. Sanitation is also a greater problem in the big cities.

The city dweller is actually capable of satisfying his everyday needs in the neighborhood in which he lives, and his recreation requirements (cinema, park and club) in the district. Once the size and nature of the building of the neighborhood and the district have been determined, there arises the question as to how many of them the city should include. Such urban structures as Houses of Pioneers, theaters, stadiums, swimming pools, etc., have an effect on urban cultural life only when their number allows the bulk of the population to use them.

Thus, questions pertaining to the determination of the optimum size of cities and the decentralization of the population are among the major problems of economics today. First of all, city planning must be organized in such a manner as to take account not only of the current requirements and economic conditions of construction, but also of the prospects of communist construction.

Economizing in city planning will, I think, be rational only when in selecting some variant for the construction of a city we proceed from its integrated effectiveness, that is, when we take account

of the cost of construction and exploitation not only of each separate house, but also of the entire group of dwelling, production, cultural and public service buildings erected with an eye to the prospects of the town's economic development. Otherwise, the temporary and apparent economies, as well as expenditures on various "temporary" structures, will later result in an overexpenditure of the budget for patch-up building, remodelling and additional structures.

Enormous sums of money are annually invested in urban construction. In the next seven years almost 15 million new flats will be available in cities and workers' settlements. In these seven years housing, municipal, cultural and public service construction in the cities and workers' settlements alone will cost over 450 billion rubles. That is why it is especially important for every ruble, every part of this vast sum earmarked for housing and cultural construction, to be spent in the most effective manner and with an eye to the prospective development of our society.

Together with the regulation of the growth of the very large and large cities there is the question of the future of the small towns both in the European part of the USSR and in the East, the former provincial centers and other commercial and industrial points on whose territory town-forming industry never arose because of lack of railways or electric power supply difficulties. Dozens of such towns have historically arisen around modern big industrial centers. The population of these natural satellites of the big cities is relatively small and their industry weak. Many of their people work in the industrial plants in the big centers. I think these towns must serve as the basis for the construction of satellite cities. A part of their population could work on the construction of the satellite cities and would become their first inhabitants. The erection of satellite cities on the basis of old small towns is, in my opinion, a solution for the problem of renovating these towns and also providing jobs for their young people who are not engaged in socially useful work. Thus, the erection of satellite cities permits the decentralization of the population of large cities and the solution of the task of raising the cultural level of the population of the suburban areas. It also permits us to determine the future of many small towns which are economically weak but have certain manpower reserves. All this will promote the emergence of new industrial areas in the countryside.

The creation of satellite cities is a realistic measure for limiting the growth of our cities. They will unquestionably be justified only if industrial enterprises will be built there. I think they should have not only isolated types of enterprises but also those which will cooperate with plants in the urban centers around which these satellite cities will be built. Apart from the construction of industrial enterprises, these satellite cities should be surrounded by highly intensive farms to supply the industrial center and the satellite city with vegetables, potatoes and dairy products processed by the food plants in the satellite city.

I think that the satellite city should be not less than 80 to 100 kilometers away from the big center. Modern means of communications and transport will ensure the necessary links between the industry and population of the satellite city and the big center. The press, radio, television and the cinema permit the population of the satellite city to live to a certain extent the same cultural life as prevails in the big center. But it is inadvisable to locate the satellite city less than 80 to 100 kilometers away. In time, we will be able to regulate the population growth of cities, but this does not mean that cities will not grow. Within a radius of 50 kilometers of the big center there must be sanatoria, rest homes and countryside cottages. Hospitals will have to be located in this area in the future. The suburban area therefore cannot be limited to 15 to 20 kilometers. To ensure really favorable sanitary and hygienic conditions for work and rest, as well as health care facilities for the inhabitants of a town with many millions of people, naturally requires larger green areas than the conventional suburban wooded parks. If the distance from the big centers to the satellite city is too small they will eventually merge and instead of decentralization we shall have a concentration of population, which is inadvisable from any point of view.

The problems of settlement and city planning are closely related. In their solution account must be taken, first, of the existence of many thousands of historically shaped settlements, and second, the intensive natural increase of population. In the total population there is occurring a relative and absolute increase in the number of people below and above employable age. The Soviet state is concerned for the whole population. It tries to satisfy its needs for additional housing, needs which arise from the longer life expectancy and the higher birth rate. With the growth in the number of children there is greater need for the construction of schools, boarding schools, nurseries, kindergartens, etc.

The growth of the population of non-employable age leads to inadequate living conditions for workers and employees and also for members of their families who are not officially connected with production in the workers' settlements lying near

industrial enterprises. The very concept of "workers' settlement" is already quite out of tune with the nature of its population. That is why it is advisable to build not workers' settlements which are of a temporary nature, but settlements which are designed for long periods and which ensure the necessary conditions of work, life, cultural services and rest. National economic considerations, the saving of state funds and social labor insistently demand the abandonment of the practice of throwing up temporary and provisional structures. A high level of socialist production permits the solution of this problem. In building a large city or a small settlement we must take account of the prospect of development of the economic area and its geographical and natural conditions so as not to have to go in for patch-up building and remodelling.

Both in the large existing industrial centers and in any new town or settlement, dwelling houses must have not only electric lighting, but also steam, gas or electric heating, modern kitchen facilities and toilets. Naturally the variants of these structures will differ from town to town according to the size of population. Despite all the additional expenditures connected with the creation of the necessary housing and living conditions, I think that these still have to be provided now. This, I think, will help overcome the future hypertrophy of at least 150 cities with a population of over 100,000 and 25 cities with over 500,000 population at present.

It is a fact that in many small towns and settlements (including new ones under construction) dwelling houses, the buildings of cultural institutions, etc., often do not have the same qualities as those in Moscow, Leningrad, and other big cities. By no means all the dwelling houses in cities and workers' settlements have running water, drainage, central heating, electric and gas stoves, baths and showers. But 26% of the entire urban population — 25.7 million persons — resides in 3,827 small cities and workers' settlements. The lack of the necessary housing and living conditions in the newly erected cities and settlements hampers decentralization of the population, the more rational distribution of manpower resources, and consequently, their more rational utilization.

Naturally, a radical improvement in the distribution of population over the country's territory is above all connected with the further growth of productive forces, the creation of the material and technical foundation of communism, and the solution of the USSR's main economic task. The regulation of the growth of cities and the settlement of the population already permits a more rational and fuller use of the employable population. The attendant rise in the rate of growth of the national income compensates for the expenditures caused by extensive construction of dwelling houses, cultural establishments and amenities.

Actual practice requires the solution of the problem of the most rational and economical nature of rural settlements, something that has been repeatedly pointed out by N. S. Khrushchev. With the further advance of our society along the road to communism there will be a change not only in the features of the towns but also of the villages. Their population will apparently be larger than it is in such localities today, and their area will be smaller. Rural building will largely be similar to that of urban. As N. S. Khrushchev has stressed it is expedient to build the most economical, two-, three- and four-story houses with all the basic amenities: electricity, running water, gas, drainage, etc.

On the other hand, the village is becoming similar to the city through the creation of economic prerequisites for the resettlement of residents of villages in large agricultural settlements which are the nuclei of future communist populated localities of the urban type with a strictly planned structure, cultural establishments and amenities, engineering network, etc.

The December (1959) Plenum of the Central Committee of the CPSU noted the need to work out schemes of district and intra-branch planning when compiling projects for the development of individual agricultural areas. They must provide for the long-range development and specialization of agricultural production, the rational distribution of production and public buildings, residential areas, electrification, water supply, highway construction and communications, the further development of the populated localities of collective farms and state farms. In some districts of the country (for example, Novo-Usmani in Voronezh Region, Sasovo in Riazan Region, Khomutovka in Kursk Region, El'ninsk in Smolensk Region, etc.) this work has already begun. This work naturally takes time. Moscow was not built in a day, N. S. Khrushchev noted at the December Plenum. He stressed that "in the construction and modernization of villages, as in any big undertaking, there must be patience. It is, of course, an important question, but let us not turn it into a campaign. Our success in the solution of the task of modernizing our villages will depend on the attention which we give to the development of agricultural production, the mechanization of production processes and an increase of accumulations. Those who have the funds and the means, let them build."

In the period of the full-scale construction of

communism the solution of the key problems connected with settlement appears as the transfer of population and skilled manpower to the East. This process has assumed particularly broad scope in recent years. In the current seven-year period it is planned to resettle a great number of workers and their families from the central areas of the country to the East.

In accordance with the socialist principles of distribution of productive forces, new towns and industrial centers have been set up in various parts of the country. The All-Union Population Census of 1959 shows that in the years of Soviet power important shifts have taken place in the population and its distribution over the economic and geographical areas, towns and industrial centers. With the development of previously backward economic areas of the East and Central Asia, their population has been growing at a particularly rapid pace. As a result, a change is taking place in the balance of population between the eastern and western parts of the country. While for the USSR as a whole the population increased 9.5% over the prewar period, the Urals areas had an increase of 32%, Western Siberia 24%, Eastern Siberia 34%, the Far East 70%, Central Asia and Kazakhstan 38%. In these areas there are hundreds of new industrial centers. The population has increased both as a result of natural and mechanical growth. (6)

In the eastern areas industrial production developed faster than in the European part of the country. From 1940 to 1954 industrial production in the eastern areas increased 4 times, and for the whole of the USSR 2.8 times. But the bulk of our labor resources are still in the European part of the USSR. As of 1959 the Central, Southern and Western Areas had almost 52% of all factory and office workers, and Eastern Siberia, Central Asia, Kazakhstan and the Far East 15.1%.

The economic development of some areas by and large hinges on the availability of manpower resources, male and female workers. This often leads to the desire to build new industrial enterprises in big cities, which results in an excessive concentration of production and population. The shifts in population that have taken place over the country's territory are quite insufficient from the standpoint of the new distribution of industry and mineral, raw material and power resources. The erroneous view that new industrial undertakings should be built mainly where there is sufficient and often highly dense population has often placed in the background the tasks connected with the problem of settlement, and consequently the tasks of obtaining the best use of manpower resources.

Insufficient attention to the cultural and everyday needs of the population is one of the causes of the turnover of skilled labor in the remote areas of the North, Siberia, Kazakhstan, and the Far East. In some parts of the country, from 50 to 80% of the working personnel is renewed in a matter of four years. For instance, 52.7% of those who arrived in 1956 to work at the big "Zheleznodorozhny" State Farm, in Oktiabrskii District, Kustanai Region, left it in the same year; in 1957 the figure was 73.2% and in 1958 it was 65%. Of all those who arrived in Kustanai Region collective and state farms during 1955-1958, 76.3% left in that same period.

The construction of new industrial centers in the eastern areas and the economic development of rich natural resources in these areas will be more successful if the newcomers are provided with the necessary housing, cultural conditions and amenities. The stabilization of manpower unquestionably promotes the effective use of the enormous resources which the state earmarks for the development of the country's eastern areas.

As we know, the socialist principle of distribution of productive forces requires industrial enterprises to be closer to the sources of raw materials and areas of consumption of the goods, and the development of previously backward areas in accordance with the Leninist nationalities policy and with the demands of the socialist law of population.

The construction of new plants in densely populated areas leads to a reduction of current capital investments in housing and public services in comparison with the areas where there is not enough manpower. But since the cities of the central areas cannot grow indefinitely, in the interests of the earliest involvement of the eastern natural resources into the economic cycle it is advisable to increase capital investment in housing construction and public services in these areas. This will promote a more correct and natural distribution of the bulk of the manpower — the employable population — over the country's territory and will thereby lead to a more rapid development of the rich natural resources of the East. This is justified from every standpoint. First, the increase in the initial spending on capital construction of new industrial projects together with the creation of a whole complex of cultural and public service establishments of the necessary standard is compensated for by the broad scale and comprehensive nature of construction. Second, the stabilization of skilled labor on the new territories leads to a reduction of costs connected with the transfer of population and the turnover of personnel. Third, production costs at the enterprises built in the new areas, especially in the extractive and power industries, is much lower than

in old industrial areas because of a number of favorable natural factors. Fourth, in the eastern areas as a rule such building materials as timber, quarry stone, shingle and gravel are much cheaper. Fifth, the new enterprises are on the most modern technical level.

Thus, the correct territorial distribution of capital investments leads to a considerable growth in the productivity of social labor. These and other factors undoubtedly justify some increase in expenditures on industrial and civil construction in the new areas.

Great possibilities for saving capital investments are connected with improvements in the planning of industrial and civil construction in the new areas, as well as improvements in the quality of design and organization of operations. Experience in the construction of a hydropower, production and housing complex at Bratsk shows that it is possible to save billions of rubles. A reduction in the period of construction of new projects permits a sharp increase in the coefficient of yield of the instruments of labor on the scale of the national economy as a whole. An improvement in the quality of work, as well as the industrialization of construction operations and integrated mechanization of building, the transformation of the building industry into a mechanized process of assembly of buildings from blocks, parts and units manufactured at industrial enterprises, will permit an increase in the productivity of labor in construction by 60 to 65% in the current seven-year period.

The economic effectiveness of the development of the eastern areas will increase over the long-term period. All this shows that it is not only necessary, but that it is economically expedient to move masses of the population to the East and to develop the thinly populated areas. The reduction of the cost of performing this enormous job is only possible with painstaking and fully substantiated planning.

The resolutions of the 21st Congress of the CPSU emphasize that the unprecedented sweep of construction in the forthcoming seven years demands that special attention be given to the distribution of productive forces. The Congress noted the successful economic utilization of enormous raw material and power resources in the eastern areas. There is increasing work being done on the creation of the third metallurgical base in Siberia and the Kazakh Republic, the world's biggest hydroplants are being built on the Angara and the Enisei, and the successes in the development of the virgin and fallow lands are being stabilized.

The Seven-Year Plan provides for a sharp increase in the share of the eastern areas in the production of key items. Thus, in 1965 the share of the eastern areas in total coal output will be roughly 50%, steel 48%, refined copper up to 88%, cement 42%, electric power output 46%, etc.

Special attention to the distribution of the productive forces is also dictated by the Leninist nationalities policy. Our plans, N. S. Khrushchev emphasized at the 21st Congress of the Party, strikingly express the Leninist nationalities policy, which ensures the broad possibilities for the full development of the economy and culture of all peoples. The successful realization of the directives of the 20th and 21st Congresses of the CPSU concerning the distribution of productive forces will promote a more even settlement of the population over the territory of the USSR, and in particular the resettlement of a part of the population, especially the youth, in the eastern parts of the country.

Footnotes

(1) Friedrich Engels, Anti-Duehring, State Political Literature Publishing House, 1957, p. 280 (Russian edition).

(2) V. I. Lenin, Collected Works, Vol. XXI, p. 5 (Russian edition).

(3) I say settlement, because in the course of time "village" will disappear as a concept.

(4) The term "residential area" [selitebnaia territoriia — editor] as used among city planners is the area where people reside and where, alongside the dwelling houses, there are cultural and public amenities and green planted areas. The rules and standards of town planning and building approved by the State Construction Committee of the USSR Council of Ministers establish the general size of residential areas as follows: for very large and large cities — 9-11 hectares per 1,000 population; for medium cities — 11-12 hectares; and for small towns — 12-15 hectares.

(5) See, for instance, the articles by M. V. Kucherenko, "The Future of Our Cities," Pravda, October 25, 1959, and B. Svetlichny, "A Major Source of Economies in Construction," Voprosy Ekonomii 1959, No. 6.

(6) See O. A. Konstantinov, "Some Conclusions on the Geography of Cities and the Urban Population of the USSR from the 1959 Census," in Izvestiia Akademii Nauk SSSR, Seriia Geograficheskaia No. 6, 1959.

Vestnik Statistiki, No. 5, 1960

A. VIKHLIAEV:

The Method of Valuation of Gross Agricultural Production

A number of changes in the methods of calcu-ating agricultural production introduced in recent ears ensure a fuller and more accurate accounting n this field. Of great value is the transition on the ollective and state farms to computation of the arn yield on the basis of annual reports. The ross cotton crop is estimated at present on the ba-is of the reports of state procurements; accounts re kept of sugar beets used up as food and of fruits nd berries cultivated by the population. Adoption f indices for livestock and poultry breeding has een highly instrumental in improving accounting f livestock produce.

Some changes have been introduced lately in the ethods of evaluating gross agricultural produc-on. The Scientific-Methodological Council of the entral Statistical Administration of the USSR has ecently approved new methods of evaluating gross gricultural production in current prices.

Evaluation of agricultural production in actual rices of the current year is necessary for ana-zing the links between agriculture and other anches of the national economy, determining oss agricultural production as part of the aggre-ate social product, determining the portion of the tional income realized in agriculture, as well as etermining the incomes of the agricultural popula-on.

Agricultural production is recorded in money rms only on the state farms and collective farms, t in the households of the population. There-re, unlike industrial production, the volume of oss agricultural production is estimated on the sis of accounting calculations. To this end, bal-ces of agricultural production in kind are valued prices of the current year.

Each item in the balances of agricultural pro-ction in the households of producers is valued the basis of the prices at which the correspond-g products enter national economic circulation. wever, the valuation of agricultural products at tual sales prices is complicated by the following tors: first, a portion of the output is disposed without the use of money, i.e., without any actual prices (refunds of loans in kind and non-monetary circulation within the village); second, not all of the products of agriculture are designed for sale outside the farms; a considerable portion of the products is consumed directly on the farms where they are produced.

Up to the recent period the methods of evaluating gross agricultural production in current prices were, in general outline, as follows:

a) marketable production was valued at actual prices at which it was sold; collective farm production disposed of without the use of money was valued as follows: refund of loans in kind — at state purchase prices; non-monetary circulation within the village — at money prices prevailing in intra-rural turnover.

b) non-marketable production was valued as follows: at state farms — on the basis of production costs; on the collective farms and in personal households — on the basis of average marketing prices identical for the mentioned categories of farms. Exceptions were made for specific products with a low marketing potential (straw, hay, silage, etc.) which were valued in token prices based on their production costs at the state farms.

Consequently, according to the old method of evaluation almost all agricultural production was valued in average commodity prices which in turn were based on the sale of marketable production in the given year. How legitimate was this method of valuing gross agricultural production?

The basic, the main portion of agricultural production is its marketable part. Marketable production of agriculture covers the requirements of industry for agricultural raw materials and of the non-agricultural population for food; marketable production is also used for creating state reserve stocks of food and raw materials and special reserves for export.

The overwhelming portion of marketable production of agriculture is sold to the state, and the remaining, comparatively small portion, is sold on the collective farm market. Accordingly, there are different prices corresponding to the different

channels of circulation of agricultural production: delivery prices for the output received from the state farms, state purchase prices for collective farm output, and collective farm market prices.

As mentioned above, the marketable portion of agricultural production is valued at the respective prices at which it is sold. In valuing marketable production at the actual prices at which it is sold, that part of net output which is reallocated through prices to the state fund is not reckoned. Consequently, the role of agriculture in the national income is somewhat underestimated. Nevertheless, this does not tell on the total volume of the national income, because the reallocated part of the net income created in agriculture is considered in the incomes of the enterprises and organizations of other branches of the national economy.

Estimates of marketable production on the basis of some kind of uniform prices closer to the cost of the agricultural products would have been incorrect, for in this case the monetary valuation of agricultural products would not have corresponded to the real cost relationship in the national economy. In reality, existing current prices represent the money form in which the process of expanded socialist reproduction is carried out. Abstracting from actual prices in the valuation of marketable production of agriculture would amount to abstracting from the real processes of reproduction. Consequently, the existing method of valuing marketable production in current prices as such does not arouse any doubts. Nevertheless, in an analysis of the composition of marketable production we must not overlook the fact that it depends upon two factors: the level of actual sales prices of agricultural products and the relative importance of the various channels through which this production is marketed. Their influence on average commodity prices is interdependent, although it varies for specific agricultural products.

Agricultural products classified among means of production (agricultural raw materials) are sold, as a rule, through one channel only, through state purchases. Average marketing prices for this production are determined by the level of state purchase prices. It should be noted that this production is almost completely marketable production and the question of valuing its non-marketable portion is of little importance in practice.

Agricultural production which by its economic designation may be included in both means of production and articles of consumption (raw materials for industry and food for the population) is sold through two channels: through state purchases and on the collective farm market. Moreover, the level of prices and the relative importance of sales through these different channels vary for different products. Because of the different proportions of state purchases and sales on the collective farm market by collective farms and personal households, and the existing differences between state purchase prices and collective farm market prices, weighted average prices for the marketable portion of this production do not reflect the real relationships between state purchase prices and collective farm market prices for specific agricultural products.

This may be seen from the relationship between prices per centner of the main products of agriculture in 1958, which were as follows:

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1958 Prices for Main Agricultural Products
(Grain price = 100)

	State purchase prices	Collective farm market prices	Weighted average price of marketable production
Grain	100	100	100
Potatoes	68	61	126
Vegetables	128	83	169
Milk and dairy products (in terms of milk)	185	96	170
Meat*			
beaf and veal	1688	521	1443
pork	1776	650	1660
mutton	1518	593	1565

* State purchase prices based on actual live-weight prices with due account for slaughtered weight.

The relationship between state purchase prices nd collective farm market prices, i.e., actual rices at which agricultural production is sold, dif- ers from the relationship between weighted aver- ge prices for the marketable production of the ollective farms and of personal households. The igh share of the collective farm market in the ale of such products as potatoes and vegetables eads to an overestimation of average commodity rices for these products as compared with aver- ge grain prices, and consequently, to overestima- on of their share in all marketable agricultural roduction. Consequently, valuation of the marketa- le portion of agricultural production at weighted verage prices misrepresents the composition of gricultural production expressed in expenditures f social labor.

The high share of personal households in the roduction of potatoes and vegetables, on the one and, and the high share of the collective farms nd state farms in the production of grain, on the her hand, combined with the existing relationship etween non-marketable prices for grain, potatoes nd vegetables, leads to the exaggeration of the hare of potato and vegetable production and, cor- espondingly, to the share of personal households agricultural production as a whole. The result an underestimation of the share of grain produc- on and of the production of the state farms and llective farms.

Nor should it be forgotten that the relationships mong average commodity prices for agricultural oduction do not remain unchanged. Under the d procurement system increases in production d in the sales of products by the collective farms d personal households raised average commodity ices, inasmuch as a relatively large share of the arketable production of these farms was sold at gher prices, i.e., state purchasing prices and llective-farm market prices. Consequently, the equal change in the marketability of specific ricultural products changed the relationships be- een average commodity prices for these prod- ts. As a result, in the districts where a greater are of agricultural production was sold by collec- e farms and other farms at state purchase ices, gross agricultural production and national come in terms of money was higher.

Adoption of new state purchase prices and of the w agricultural procurement procedures created centives to greater sales of agricultural products the collective farms to the state, with a conse- ent reduction in the general volume of sales on e collective farm market. With the relative bility of the share of the volume of products sold collective farms and personal households on the collective-farm market, the change in the relationships among average commodity prices with the general tendency towards their increase now takes place mainly through changes in state purchase prices.

And now let us look at the methods of valuing the non-marketable part of production. The method of valuing the non-marketable part of agricultural production employed hitherto was largely arbitrary. On the state farms the non-marketable part of production designated for internal consumption is included in the calculations and in the value of gross production of the state farms according to its production cost. The non-marketable part of production of the collective farms and of the personal households was appraised at the average commodity prices received by these farms. This appraisal was quite arbitrary inasmuch as in the given case the portion of agricultural production which was not sold was actually appraised at prevailing prices.

This arbitrary character was all the more marked, since the marketable share of specific agricultural products varies.

Methods of calculating agricultural production should be based on the economic nature of both marketable and non-marketable production. Valuation of non-marketable production at average prices of marketable production of the collective farms and personal households was in essence contradictory to its economic nature and designation. And it was for this reason that changes have been introduced in the methods of valuing the non-marketable portion of agricultural production.

Non-marketable production of agriculture includes:

1. Production for internal consumption, composed of:

a) production used for production purposes, i.e., agricultural production used for seed, feed and other production purposes;

b) production used for personal consumption by the producers themselves;

c) production used for processing in industry and in the home.

2) Losses in storaging.

3) Changes in carry-over of production from the beginning to the end of the year.

The basic question arising from the standpoint of methods of valuing the non-marketable portion of production is the question of valuing the part used for production purposes and the part used for personal consumption. These constitute the largest share in non-marketable production. The correctness of the method of valuing production used for production purposes and personal consumption largely determines, in the final analysis, the

correctness of the evaluation of the non-marketable part of agricultural production as a whole.

Let us analyze, in turn, the methods employed in appraising each part of the non-marketable production of agriculture.

On the state farms, as mentioned above, the non-marketable part of agricultural production is included in the calculations in accordance with its internal designation on the basis of its production costs. (1) No objections can be raised to this method of appraising the non-marketable part of production at the state farms and other state agricultural enterprises. As we know, the production of the industrial enterprises used for internal needs is also assessed at its production cost.

The non-marketable production of the collective farms and of the personal households was appraised, as mentioned above, at weighted average prices of the marketable production of these farms. This method of appraising the non-marketable part of production of the collective farms and personal households is unsatisfactory for the following reasons:

The main portion of non-marketable production on the collective farms is composed of production used for production purposes: seed, livestock feed, etc.

The portion of output used by the collective farms for production purposes is usually their own production. The collective farm cannot use it as marketable production. Seed and forage stocks in amounts sufficient to meet annual requirements as well as emergency (seed and forage) stocks are laid aside as a rule from the crops of the current year harvested by the given collective farm, and not from purchased seed and fodder stocks. Consequently, this part of non-marketable production of the collective farms has a definite economic designation and it may be used by the collective farm for these purposes only.

How then should this most important part of non-marketable production of the collective farms be valued?

The method of valuing non-marketable production of the collective farms at average commodity prices was used hitherto because production costs at the collective farms were not assessed until very recently. Now that estimates of production costs of the main items of collective-farm production have become firmly rooted in the practice of the statistical organs, it is natural that the methods of valuing non-marketable production of the collective farms should be altered. In accordance with the new methods adopted by the Central Statistical Administration, the non-marketable part of collective farm production used for production purposes should be appraised on the basis of production costs at the collective farms. This method of appraising the non-marketable part of production of the collective farms corresponds to its economic nature, inasmuch as it concerns production which is used for the needs of the farms themselves. Valuation of the non-marketable part of production of the collective farms used for production purposes on the basis of production costs at the collective farms ensures greater comparability of gross agricultural production of the state farms and other state enterprises with the gross production of the collective farms.

What prices may be used for valuing the non-marketable production of the personal households?

Non-marketable production used for production purposes in the personal households includes primarily such crops as potatoes and vegetables, and to a lesser degree grain and hemp (seed), as well as livestock products such as milk, eggs and small amounts of meat. In practice the question is reduced to a correct appraisal of the two main products (potatoes and milk) used for production purposes. The second most important item of non-marketable production in the personal households includes output used for personal consumption in the household. This includes a part of the production of the personal households of the collective farmers, workers, employees and other groups of the population, as well as a portion of the collective farm production which is distributed according to workday units earned by the collective farmers.

Production used directly by the producers for production purposes and personal consumption may be sold at their discretion. It is proposed, as a temporary measure, to appraise this part of agricultural production on the basis of average marketing prices. (2)

In valuing production used for processing in industry or in households, it should be borne in mind that the ultimate products of this processing are either sold as marketable production or are used for production and consumption purposes by their direct producers. Therefore, for valuation purposes this production should be divided into marketable and non-marketable portions, distinguishing the parts used for production and consumption.

The non-marketable portion of agricultural production also includes changes in production stocks from the beginning to the end of the year. Inasmuch as this part of production may be potentially used as marketable or non-marketable production it is proposed to value it at average prices based on the valuations of marketable production and production used for production and consumption purposes.

In addition to the valuation of agricultural

roduction in prices of the current year, production is also valued in constant (comparable) rices. The valuation of production in comparable prices is done for the purpose of determining the dynamics of its physical output, the degree of marketability of products, the volume of ll agricultural production and of specific groups f farms, studying the dynamics of labor productivity in agriculture, and the dynamics of gricultural production per unit of land area.

As comparable prices we use the average prices mployed to value production in the base year. 926-1927 prices were used for this purpose earier, and 1951 and 1956 prices later. The valuaion of agricultural production in comparable prices oday is based on 1958 prices.

Comparable prices established at a definite time should reflect, approximately at least, cost relationships prevailing in agricultural production at the moment when these prices are fixed. However, since average prices for the base year derived by valuing agricultural production in current prices are accepted as comparable prices, the shortcomings which existed until recently in the method of valuing production, and especially in the method of valuing non-marketable production of the collective farms and personal households at weighted average prices, were reflected in the relationships among the constant (comparable) prices.

Changes in the methods of valuing gross production affected the relationships among 1958 average prices as follows:

Average 1958 Prices for Principal Agricultural Products
(In percentage; grain price = 100)

	Given evaluation of non-marketable production of collective farms and personal households at average commodity prices	Given evaluation of non-marketable production of collective farms on basis of production costs, and production of personal households — at average commodity prices
Grain	100	100
Potatoes	134	118
Vegetables	174	186
Milk	182	202
Meat:		
beef and veal	1504	1523
pork	1781	1925
mutton and goat meat	1633	1898

These figures indicate that the relationships mong average 1958 prices calculated by the meth- in effect today, and primarily the relationships nong average prices for grain, potatoes, vegebles and milk, differ substantially from the relaonships among average prices calculated by the d method employed in valuing agricultural proction. But average 1958 prices used today as mparable prices can serve only for calculating namic indices of the physical volume of produc-n. They cannot be used to determine the volume production for specific farms and regions of the untry for the purpose of studying their level of onomic development. Relationships among weighted average prices based on the valuation of the marketable part of agricultural production do not reflect the expenditures of social labor, and this affects the relationships among average base year prices accepted as comparable prices. For these purposes use may be made only of prices which reflect expenditures of social labor on the production of specific agricultural products.

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Changes in the system of valuing agricultural production which have been introduced recently ensure a more accurate determination of the volume of gross agricultural production and of its composition. Nevertheless, further improvements in

methods of valuation will be necessary. The valuation of the consumed portion of the agricultural product will evidently be brought increasingly closer to the valuation based on state purchase prices. One of the major problems arising in this connection is the elaboration of a system of constant prices which would reflect the expenditures of social labor on the production of specific agricultural products in the base year. These prices would provide the basis for a more correct determination of the composition and social structure of agricultural production, for studying the level of labor productivity and of agricultural production in different regions of the country.

Footnotes

(1) Non-marketable production of the subsidiary and other state enterprises is appraised on the basis of its production costs on the state farms.

(2) We think it would be possible to value production used in the personal households for production purposes at state purchase prices which are the same for both the collective farms and personal households. This recommendation is based on the following considerations. First, the household of collective farmers, workers, employees and other groups of the population are subsidiary enterprises designed mainly for consumption purposes, and the production used on these farms for production purposes is produced directly by the population and is not subject to any intermediary purchase-and-sale relations. Second, although state purchase prices do include an element of reallocation, they reflect the socially necessary expenditures on agricultural production in the collective farms and personal households.

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Vestnik Statistiki, No. 4, 196

Agricultural Statistics

Tractors, Combines and Trucks in Agriculture
(at end of year, in thousands)

	1940	1953	1958	1959 (July 1)
Tractors				
in physical units	531	744	1001	1033
in terms of 15-h.p. units	684	1239	1750	1790
Grain harvester combines				
— total	182	318	502	510
Self-propelled harvesters	—	109	180	195
Trucks	228	424	700	720

Gross Production of Agricultural Crops (Barn Yield) in All Categories of Farms

	1909-1913 Average annual output in present boundaries	1913 in present boundaries	1940	1949-1953 Average annual output	1953	1958	1954-1958 Average annual output	1959
Grain:*								
billion poods	4.4	5.3	5.8	4.9	5.0	8.6	6.9	7.6
million tons	72.5	86.0	95.5	80.9	82.5	141.2	113.2	124.8
Wheat:								
billion poods	1.3	1.6	1.9	2.1	2.5	4.7	3.6	4.2
million tons	21.0	26.3	31.7	34.5	41.3	76.6	58.3	68.6
Sugar beets (factory sugar) — million tons	10.1	11.3	18.0	21.1	23.2	54.4	35.5	43.9
Raw cotton (procurements) — million tons	0.68	0.74	2.24	3.49	3.85	4.37	4.20	4.68
Flax fiber — thousand tons	316	401	349	227	162	438	400	386
Seeds of oil-bearing crops — million tons	1.0**	1.0	3.22	2.51	3.11	5.15	3.86	3.34
Sunflower seeds	0.75**	0.75	2.64	2.04	2.63	4.63	3.42	2.94
Potatoes — million tons	30.6	31.9	75.9	75.7	72.6	86.5	83.4	86.4
Vegetables — million tons	5.5	5.5	13.7	10.0	11.4	14.9	14.0	14.3
Fruits and berries — million tons	...	...	2.71	2.23	2.16	3.43	2.83	3.83
Grapes — million tons	0.59**	0.59	1.13	0.84	1.04	1.73	1.34	1.68

* Average annual grain harvest in 1910-1914 on the present territory of the USSR was 4380 million poods, or 71.8 million tons.
** 1913

Production of Principal Livestock Products in All Categories of Farms

	Total meat and fat, in slaughter weight (million tons)	Pork (million tons)	Milk (million tons)	Wool (thousand tons)	Eggs (billions)
1909-1913 (average annual output in present boundaries)	4.8	1.7	28.8	192	11.2
1913:					
in present boundaries	5.0	1.8	29.4	192	11.9
in boundaries before September 17, 1939	4.1	1.3	24.8	180	10.2
1940	4.7	1.7	33.6	161	12.2
1949-1953 (average annual output)	4.9	1.7	35.7	198	12.9
1953	5.8	2.3	36.5	235	16.1
1958	7.7	3.3	58.7	322	23.0
1954-1958 (average annual output)	6.9	2.9	48.7	272	20.1
1959	8.9*	3.6	62	355	25

* More exact data; the figure for expected meat production published earlier was 8.6 million tons.

State Procurements and Purchases of Principal Agricultural Products in All Categories of Farms

	1940	1949-1953 (average annual figures)	1953	1958	1954-1958 (average annual figures)	1959
Products of Field Husbandry (harvest of corresponding year)						
Grain:						
million poods	2225	2001	1899	3472	2660	2846
million tons	36.4	32.8	31.1	56.9	43.6	46.6
Sugar beets — million tons	17.4	20.7	22.9	51.0	34.2	41.4
Raw cotton — million tons	2.24	3.49	3.85	4.37	4.20	4.68
Flax fiber — thousand tons	245	175	145	392	349	340
Seeds of oil-bearing crops — thousand tons	1867	1546	2060	2919	2286	2051
Sunflower seeds	1500	1310	1796	2615	2054	1854
Potatoes — million tons	8.5	6.0	5.4	7.0	7.3	6.8
Vegetables — million tons	3.0	2.0	2.5	4.2	3.8	4.5
Livestock Products						
Cattle and poultry (in live weight of cattle) — thousand tons	2165	2698	3604	5661	4674	7554
Milk and dairy products (converted to milk) — thousand tons	6453	9222	10646	22080	16935	24946
Eggs — in millions	2679	2139	2618	4536	3534	5655
Wool (unwashed) in accounting weight — thousand tons	120	158	197	315*	252*	354*

* Purchases of wool in accounting weight are determined by converting the physical weight according to established zonal norms of yield of pure fiber from unwashed wool. For example, a collective farm sells 800 kilograms of wool to the state with a yield of pure fiber of 38%. If the established norm is 35% the accounting weight in this case would be 869 kilograms.

Production of Field Husbandry and Livestock Products in the USSR and the USA

	USSR				USA
	1953	1958	1959	1965 target figures	1959
	Total Production — million tons				
Grain	82.5	141.2	124.8	164-180	184.9
Wheat	41.3	76.6	68.6		30.7
Corn, total	3.7	16.7	11.8		110.8
Including fully ripe dry grain	3.7	10,2	5.5		101.5
Potatoes	72.6	86.5	86.4	147	11.0
Meat (including poultry meat, lard and offal; in slaughter weight)	5.8	7.7	8.9	at least 16	17.3
Milk	36.5	58.7	62	100-105	56.6
Butter (factory and household production) — thousand tons	497	779	845	about 1150	658
Eggs — in billions	16.1	23.0	25	37	66.6
	Production Per Capita — kilograms				
Grain	435	683	593	716-786	1045
Wheat	218	370	326		174
Corn, total	20	81	56		626
Including fully ripe dry grain	20	49	26		574
Potatoes	383	418	410	642	62
Meat, in slaughter weight	31	37	42	70	98
Milk	192	284	293	437-458	320
Butter	2.6	3.8	4.0	5	3.7
Eggs, in units	85	111	118	162	376

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